Vol. 826
No. 88

Monday
12 December 2022

PARLIAMENTARY DEBATES
(HANSARD)

HOUSE OF LORDS
OFFICIAL REPORT

ORDER OF BUSINESS

Lords wishing to be supplied with these Daily Reports should give notice to this effect to the Printed Paper Office.

No proofs of Daily Reports are provided. Corrections for the bound volume which Lords wish to suggest to the report of their speeches should be clearly indicated in a copy of the Daily Report, which, with the column numbers concerned shown on the front cover, should be sent to the Editor of Debates, House of Lords, within 14 days of the date of the Daily Report.

This issue of the Official Report is also available on the Internet at
https://hansard.parliament.uk/lords/2022-12-12

The abbreviation [V] after a Member's name indicates that they contributed by video call.

The following abbreviations are used to show a Member's party affiliation:

Abbreviation	Party/Group
CB	Cross Bench
Con	Conservative
DUP	Democratic Unionist Party
GP	Green Party
Ind Lab	Independent Labour
Ind SD	Independent Social Democrat
Ind UU	Independent Ulster Unionist
Lab	Labour
Lab Co-op	Labour and Co-operative Party
LD	Liberal Democrat
Non-afl	Non-affiliated
PC	Plaid Cymru
UUP	Ulster Unionist Party

No party affiliation is given for Members serving the House in a formal capacity or for the Lords spiritual.

House of Lords

Monday 12 December 2022

2.30 pm

Prayers—read by the Lord Bishop of Chelmsford.

Introduction: Lord Hendy of Richmond Hill

2.38 pm

Peter Gerard Hendy, CBE, having been created Baron Hendy of Richmond Hill, of Imber in the County of Wiltshire, was introduced and made the solemn affirmation, supported by Lord Faulkner of Worcester and Lord Hendy, and signed an undertaking to abide by the Code of Conduct.

Introduction: Lord Peach

2.44 pm

Sir Stuart William Peach, KBE, having been created Baron Peach, of Grantham in the County of Lincolnshire, was introduced and took the oath, supported by Lord Taylor of Holbeach and Lord McDonald of Salford, and signed an undertaking to abide by the Code of Conduct.

Death of a Former Member: Lord Young of Graffham

Announcement

2.49 pm

The Deputy Speaker (Lord Haskel) (Lab): My Lords, I regret to inform the House of the death of Lord Young of Graffham on 9 December. On behalf of the House, I extend our condolences to his family and friends.

Football: Abuse and Violence

Question

2.49 pm

Asked by ***Lord Mann***

To ask His Majesty's Government what discussions they have had with football authorities about abuse and violence directed against referees and other match day officials.

The Parliamentary Under-Secretary of State, Department for Digital, Culture, Media and Sport (Lord Parkinson of Whitley Bay) (Con): My Lords, His Majesty's Government are clear that all forms of antisocial behaviour, abuse and assault against match officials, whether on or off the pitch, are completely unacceptable. The Government regularly discuss the measures being taken by the football authorities to stamp out this behaviour and will continue to press for action against the small minority of people who act in this way.

Lord Mann (Non-Afl): There are a large number of 14 to 17 year-old children—boys and girls—who are referees. The Football Association tells me that it is 35% of registered referees. Despite their age, these children receive abuse from parents and coaches—from adults. In some cases, when that happens they have to go, without support, into a decentralised system run by the FA and face the person who has abused them. Does the Minister agree that the FA needs a centralised system and that the first principle for these children should be safeguarding, not the football systems that currently prevail?

Lord Parkinson of Whitley Bay (Con): The noble Lord raises an important issue. One of the great powers of sport is that it brings people of all ages and all backgrounds together. Of course, we want everybody who takes part to have a fulfilling and enjoyable experience. That is a matter for the football authorities, but I will be very happy to undertake to make sure that officials at my department are speaking to them about this issue.

Lord Addington (LD): My Lords, will the Government give us some idea of their opinion of the professional conduct in football whereby people sit around and shout at a referee who has given a decision they do not like? Will the Government encourage the FA to make sure that dissent is punishable by a card or a sending off? If you do this, you can rest assured that professional managers will not want to end games with seven or eight players.

Lord Parkinson of Whitley Bay (Con): We believe that change needs to come from the top and participants in the professional game have the opportunity to be positive role models for people taking part at every level. That is a central message in the FA's new "Enough is Enough" campaign. Underlining this, last month the FA challenged a decision by the independent regulatory commission only to fine the manager of Liverpool FC following his sending off by the referee for shouting in the face of a linesman. The FA won its appeal and Mr Klopp served a one-game touchline ban.

Lord Wolfson of Tredegar (Con): My Lords, I declare a double interest after that answer, as both a member of the Football Regulatory Authority and a supporter of Liverpool Football Club. As my noble friend has said, all forms of abuse are unacceptable. The FA is doing important work in this area, including safeguarding. There are going to be increased sanctions, more education for both players and supporters and, at grass-roots level, the introduction of the sin-bin—which may be an idea that my noble friend the Chief Whip will take up at some point. Does my noble friend welcome these developments and the increased focus to make sure that every match official is protected from abuse within and outside the stadium, so that we can all make the beautiful game even more beautiful?

Lord Parkinson of Whitley Bay (Con): I congratulate my noble friend on his appointment and commend the work undertaken by the Football Association. I have mentioned its "Enough is Enough" campaign, which is taking action against anybody whose behaviour is unacceptable. The FA can also ban anybody who is abusive or violent towards match officials, and stricter sanctions have been introduced this season which will see longer bans put in place and mandatory education courses before anyone found guilty can return to football.

Lord Pannick (CB): My Lords, does the Minister agree that even in the most important football games, referees sometimes make inexplicable decisions—a whole series of them—which have a very adverse impact on the result? In the light of that, will he commend the attitude of the England manager, Gareth Southgate, and the England players, who displayed admirable sportsmanship in the most difficult of circumstances?

Lord Parkinson of Whitley Bay (Con): I will not speculate on any recent examples of the behaviour the noble Lord mentions, but I most certainly do congratulate the whole England football team for their conduct throughout the World Cup. They have made people, not just in England, very proud of their behaviour and people have enjoyed their very creditable performance.

Lord Woodley (Lab): My Lords, unfortunately I have personal experience of being assaulted on a football pitch as a young referee. I do not recall making any bad decisions, by the way. In all seriousness, the Minister said that this was a small minority of cases; I only wish that that were true. I am the president of a very large kids' football team, involving some 400 children, and we have to make sure that parents—both mums and dads—who are looking after kids of only five, six or seven years of age, are not shouting abuse at referees or even running on to the pitch. Is it not possible for the county FAs to give very clear directions that, if anything like this happens, the parents should be banned from watching their games and teams for at least a full season?

Lord Parkinson of Whitley Bay (Con): It is indeed for the FA to make sure that good behaviour is promulgated throughout the football pyramid. Where behaviour is criminal, such as assault, incidents should be reported to the police and appropriate action taken. The police and the Crown Prosecution Service have a range of legislation they can use to address serious incidents of other sorts. However, it is up to everybody in leadership positions in football to ensure that good behaviour is promoted at every level.

Lord Watts (Lab): My Lords, is this not yet another example of domestic football not being managed properly? When do the Government intend to introduce a regulator to start to deal with some of these problems?

Lord Parkinson of Whitley Bay (Con): These issues were looked at as part of the fan-led review conducted my honourable friend Tracey Crouch, and it was clear that the Government need to take action. Leaving certain things to the sector has not worked for decades, and fans have been let down by certain owners not acting responsibly. We will be setting out our plans to reform club football governance in the White Paper that is coming soon.

Lord Londesborough (CB): My Lords, I understand that body cameras worn by referees are being trialled by some leagues in adult grass-roots fixtures. It sounds like a sensible initiative. Can the Minister update us on it?

Lord Parkinson of Whitley Bay (Con): Technology is indeed helping in football, as it is in many sports. That is a matter for the football authorities, but I will certainly reinforce the noble Lord's point.

Lord Hunt of Wirral (Con): Would my noble friend like to take this opportunity to congratulate the England team on a 26-run victory over Pakistan, in circumstances where everyone respected the umpire and the way in which the cricket was played there?

Lord Parkinson of Whitley Bay (Con): I most certainly would. My noble friend makes an important point about good behaviour, which we see across a number of sporting forms.

Baroness Merron (Lab): My Lords, those who officiate at football matches, at every level, have a thankless task in making real-time decisions in the blink of an eye, mostly without the assistance of VAR. They undoubtedly deserve our respect and admiration for their commitment to fair play. What consideration has been given to using the forthcoming Online Safety Bill to tackle threats to match officials that are made on social media?

Lord Parkinson of Whitley Bay (Con): We have already had discussions in connection with the Online Safety Bill to make sure we tackle the completely unacceptable form of abuse we see against football players and others in leading positions in sport, following their performances. The Bill is designed to ensure that everybody has a safe and enjoyable experience online, and I look forward to debating it with noble Lords when it reaches your Lordships' House.

Lord Kirkhope of Harrogate (Con): My noble friend acknowledges, as other noble Lords have mentioned, the enormous amount of time that young people spend playing and enjoying football. Does he not think that we ought to be speaking out more about some of the influencers from senior clubs and the language that appears to be permitted in our football grounds?

Lord Parkinson of Whitley Bay (Con): Yes—verbal abuse and some of the chants that we hear need to be addressed. The FA's "Enough is Enough" campaign is, as I say, making it clear that anybody who undertakes unacceptable behaviour will have action taken against them.

Lord West of Spithead (Lab): My Lords, I qualified as a football referee at Dartmouth in 1966, and I gave up after a few years because I was conscious of making wrong decisions. Within the service environment there was not this threatening behaviour, but there is no doubt that, when one has made certain decisions—and the referees do work very hard—such threats are really damaging and dangerous. Something has to be done to stop this happening.

Lord Parkinson of Whitley Bay (Con): My Lords, 1966 was clearly a very good year for football in this country. The noble Lord makes an important point: there are fantastic role models in the Navy and across

the Armed Forces, who demonstrate very high-quality behaviour. That is what we want to see at football matches, so that everybody can enjoy the game.

Domestic Abuse Victims: Housing Benefit

Question

3 pm

Asked by ***Baroness Thornton***

To ask His Majesty's Government what plans they have to ensure that housing benefit for domestic abuse victims living in exempt accommodation is only paid to providers that have recognised expertise and who meet the standards in Part 4 of the Domestic Abuse Act 2021.

The Parliamentary Under-Secretary of State, Department for Levelling Up, Housing & Communities (Baroness Scott of Bybrook) (Con): The Supported Housing (Regulatory Oversight) Bill would introduce national standards for all supported housing, including domestic abuse safe accommodation, as well as locally led licensing schemes. This new system will drive out unscrupulous and poor providers who are exploiting vulnerable people. We will work with supported housing providers, including specialist providers of safe accommodation for those fleeing domestic abuse, using already defined standards for all of those in safe accommodation. The detail of the licensing regime will be developed through consultation and in regulations.

Baroness Thornton (Lab): I thank the Minister for that Answer. In a report in October, the Levelling Up, Housing and Communities Committee said that the exempt accommodation is a "complete mess". Given this, I think the Minister needs to inform the House of situations where some women who are abuse survivors have had to run away, for the second time, from the housing that they were allocated, because the safe accommodation was as threatening and violent as the home they had just left, and sometimes even return to the violent home. It is therefore important that there is some timescale on this, because it is clearly an urgent matter.

Baroness Scott of Bybrook (Con): The noble Baroness is correct: we cannot accept this. I am not sure that they flee from allocated housing; often, it is from rogue landlords. We are dealing with that in a number of ways, including through the supported housing improvement programme and the measures in the Domestic Abuse Act 2021. Those measures license those houses within local authority control, which are the ones that are normally allocated. Through this and the supported housing Bill, the Government are sending out a clear message to rogue landlords in the sector that we will not tolerate that poor-quality support and the exploitation of very vulnerable people.

Baroness Manzoor (Con): My Lords, there is exploitation. We see terrible conditions in our housing sector, such as mould on walls and damp. These women are fleeing domestic violence, often with young children. What will the exact timescale be to ensure that we do not see these kinds of cases, which we see flashing past our screens almost every evening?

Baroness Scott of Bybrook (Con): My noble friend is bringing up two issues. First, on mould and damp, the Secretary of State has made it very clear to social housing providers that this is not acceptable and he is keeping a very close eye on what they are doing and the outcomes of that. Secondly, regarding very vulnerable people, I urge anybody who needs help and support to go to their local authority. What worries me is that they are looking online for housing, and that is where they are being very badly exploited.

Baroness Pinnock (LD): My Lords, following the Minister's response about urging women who are suffering domestic abuse to go their local authorities, perhaps it would help if she looked at last September's report from the Public Interest Law Centre, which outlined eight ways in which local authorities are not providing the support that they should under the legislation. For example, they are making offers of unsuitable temporary or long-term accommodation, and survivors are being refused support until a threat of legal action is made. Has the Minister seen that report? If not, will she do so and refer it to her department so that they can make some changes in the legislation?

Baroness Scott of Bybrook (Con): I have not seen that report, but I will certainly look at it. Under the Domestic Abuse Act 2021, local authorities must commission enough of the right support to meet the needs of all of those victims and their children, and they must monitor and evaluate the effectiveness of that provision. Therefore, if they are not doing that, I will certainly take that back to the department and we will look into it further.

Baroness Lister of Burtersett (Lab): My Lords, when freezing the housing allowance yet again, did the Government assess the impact on domestic abuse survivors and their children trying to establish themselves in independent accommodation?

Baroness Scott of Bybrook (Con): Yes, the noble Baroness is right that that was a difficult decision in the economic climate as it is, but, as I have said in this Chamber before, we had to make a very balanced decision on rent and social housing rents because of the effect on the provider as well as on the resident.

The Lord Bishop of Chelmsford: My Lords, in addressing this very important Question, I think we should also consider the experience of migrant survivors who may have insecure status or no recourse to public funds or may be frightened of repercussions for contacting the police. Will the Minister outline what progress the Government have made in the light of the DAC's recommendation to develop a long-term funding solution that ensures that a clear universal pathway to support is available to domestic abuse survivors regardless of migration status and whether they will be reporting on the results of the pilot project to support migrant survivors?

Baroness Scott of Bybrook (Con): I do not know when the report is coming through, but these are the vulnerable people I was talking about earlier. They may have English as a second language, and they may be concerned about anybody in authority so they may

[Baroness Scott of Bybrook]
be frightened to go to the right area, which is the local authority. I ask that anybody who has any contact with these people asks them to do that. At the same time, once the Bill comes through, providers will have to be licensed and they should not be licensed if they are not fit to offer this accommodation.

Baroness McIntosh of Pickering (Con): Will my noble friend give an undertaking to the House, bearing in mind the stress that local authority budgets are under, that this funding will be ring-fenced for domestic abuse victims?

Baroness Scott of Bybrook (Con): It will be ring-fenced and local authorities are well provided with money for this issue. There are also 26 pilots across the country that are getting £20 million. They are in the areas that are most affected by these rogue landlords. They will have money to spend to increase the learning of what they can do and to support them in getting rid of these landlords in their areas.

Baroness Butler-Sloss (CB): My Lords, is the Minister aware that some of the victims of domestic abuse are also victims of forced marriage? Many of them are very young, and some of them are under 18. Will she make sure that they are helped in a way that is appropriate for very young girls?

Baroness Scott of Bybrook (Con): Of course I understand that, and I will certainly take that back and make sure we are looking at that particular group of young women.

Baroness Warwick of Undercliffe (Lab): Does the Minister accept that this needs to be seen in the context of a chronic shortage of truly affordable homes and that there has been a very considerable increase in the number of unscrupulous agencies exploiting gaps in the regulatory regime in order to claim higher benefit levels, effectively, without providing even the most minimal support? Can she confirm that the Government are aware of the extent of this problem now and where the problem arises and that the review that she has indicated has been undertaken will make sure that those unscrupulous agencies will be stopped completely?

Baroness Scott of Bybrook (Con): Yes, the Government are aware and, yes, we always need more social housing. There are more and more pressures on social housing. The Supported Housing (Regulatory Oversight) Bill, which had its Second Reading in the other place on 18 November, is being supported by the Government. It should, through licensing and regulation, stop these rogue landlords for the future.

Ajax Vehicles

Question

3.09 pm

Asked by ***Lord Coaker***

To ask His Majesty's Government what progress they have made towards the delivery of ordered Ajax vehicles.

The Minister of State, Ministry of Defence (Baroness Goldie) (Con): My Lords, the recent user-validation trials to assess the effectiveness of the modifications proposed by General Dynamics to address the noise and vibration concerns over Ajax are complete, so the department can now safely move to the next stage of testing: reliability growth trials. These are designed to test both the reliability of the vehicle and its installed systems to ensure a final-build standard that meets the department's demanding standards for this new platform.

Lord Coaker (Lab): I thank the Minister for making a phenomenal effort to be here to answer the Question. Notwithstanding her Answer, 589 Ajax vehicles were supposed to be delivered in 2017, at a total cost of £5.5 billion. Only 26 have been delivered so far and none is operational, at a cost of £3.5 billion and counting. Potentially 300 military personnel have been harmed by excessive noise and vibration. Can the Minister tell the House when all these vehicles will be delivered to the front line and at what cost? Do the Government still have full confidence in the programme or are they examining alternatives?

Baroness Goldie (Con): I thank the noble Lord for his kind comments; I felt as though I was in perpetual transit until I walked through the front door of this building.

This has been a rocky road, as I have acknowledged before. To be honest, I think that where we have got to now represents a seismic leap forward; that is, the successful conclusion of user-validation trials. This is an important vehicle. As the noble Lord is aware, it will be transformative for our British Army. It will offer technological advancement—something that Challenger 2 and Warrior do not currently possess. The noble Lord is quite correct: we were very concerned about the health and safety issues that were arising, hence the pause in the trials and the instruction to the MoD director of health and safety, Mr David King, to carry out a review. I can confirm that we have implemented now a number of the recommendations that Mr King made. We are very clear that, while this is an important addition and an important vehicle for the Army, we will not accept anything that is not fit for purpose. We remain in close contact with General Dynamics and I think we can now see a way forward.

Lord Lancaster of Kimbolton (Con): My Lords, I declare my interest as a serving member of the Army Reserve. There is no doubt that it has been a rocky road, and perhaps we should expect that, if we are to maintain a sovereign land industrial capability. But who is to blame? The answer is successive Governments. We have allowed our land industrial base to atrophy. Moving forward, will we learn that lesson? Can my noble friend perhaps say a few words on that? In the same way that we have maintained a maritime industrial base with a continuity of skills, continuing to build ships, will we now learn that lesson in the land domain? How will the recently published *Land Industrial Strategy* ensure that we do?

Baroness Goldie (Con): My noble friend makes an important point. I am not going to stand here with a finger pointing blame at individual Governments. There

has been a collective, cumulative process, as my noble friend describes. As far as the Army is concerned, I hope that the *Land Industrial Strategy*—which we published in May this year and which sets out the intent, ways of working and actions by which the Army, wider Ministry of Defence and industry will collaborate to maximise the value from investment in Army modernisation and transformation—will ensure that the Army is equipped for the future and receives the capabilities that it requires in a way that drives opportunity for UK industry and the economy but also benefits the Army.

Lord Wallace of Saltaire (LD): My Lords, a lessons-learned study was announced in May this year on what went wrong with the Ajax project. Can the Minister tell us what progress is being made with that study, when it is likely to be finished and whether it will be published in full or, at least, mostly in part? Can she also tell us whether the Procurement Bill, currently finishing its passage through this House, contains clauses that make it substantially less likely that another problem like this would arise?

Baroness Goldie (Con): I think the noble Lord refers to the King report—the report from the director of health and safety in the MoD. As I indicated to the noble Lord, Lord Coaker, we have implemented a number of these recommendations. In particular, we have stood up the noise and vibration working groups; that is an important development. Future trials of armoured vehicles will have real-time measurement of noise and vibration; that is very important. A dedicated cell has been established to support safety-risk governors for senior responsible owners with complex projects. They carry a huge responsibility and they need that support. On the wider issue mentioned, the Procurement Bill addresses particular issues of procurement but, at the end of the day, how procurement is done effectively in monitoring governance assessment is very much a matter of good regime within the MoD. We now have in place practices, procedures and processes to try to ensure that we are approaching these complex contracts in the best way that we can.

Lord Craig of Radley (CB): My Lords, could the Minister say more about the damage to and loss of hearing mentioned by the noble Lord, Lord Coaker, and what steps are being taken to ameliorate that or recompense those who have suffered?

Baroness Goldie (Con): When the problem emerged during trials, immediate action was taken: support was given, medical help was provided and monitoring continues. I do not have up-to-date information, but I will make inquiries and write to the noble and gallant Lord about that. Recently, it was made clear during the user-validation trials that no one was to feel under obligation to continue if they had concerns about health and safety, and they were free to speak up. As far as I am aware, the trials were able to proceed without interruption.

Lord Hannan of Kingsclere (Con): My Lords, the sunk-cost fallacy is a powerful distorter of human behaviour in institutions as well as among individuals. When we look back at, say, the procurement history of the Eurofighter, we see that there was never a moment when it would not have been better to cancel it, every time it came up for review. Now, with Ajax, we are looking at a vehicle that is too heavy, that cannot fire while moving, and that, as we have heard, impacts on human health because of the motion and the noise. Will my noble friend the Minister look at tweaking procurement so that we can stop throwing good money after bad—perhaps, as the noble Lord, Lord Wallace, suggests, in the coming legislation?

Baroness Goldie (Con): As I indicated, Ajax is a very important development. It is a highly protected and versatile platform. It is able to move, fight, command and be repaired anywhere on the battlefield. It is future-proofed, with an advanced sensor suite and open digital technology to face evolving threats. That is taking us into a technological age for the Army that we do not currently have with any of our equipment. That is why we are very keen to procure this vehicle. But as I said earlier, we will not take anything that is not fit for purpose.

Lord West of Spithead (Lab): My Lords, the Ajax programme, no matter how much one dresses it up, has been a complete and utter disaster. It has been a real shambles. But my question relates to future procurement. With the Ukrainians, we have seen technology—AI and such things—very rapidly changing how they fight. For example, the time to bring in counterbattery fire has been brought down by about 90%. Are we taking notice of these issues and working out new methods of procurement? We have to change things so rapidly because of the way modern warfare is changing.

Baroness Goldie (Con): I very often find cause to disagree with the noble Lord, but, on this occasion, I accept his proposition that the conflict in Ukraine has informed us. It is the most recent example of global conflict that we have encountered in modern times, and it has been extremely educational and informative for the MoD. As to how that reaches out into procurement, it has highlighted where issues can arise in relation to procurement, particularly at short notice and in securing procurement at pace, and we are learning these lessons. But, as I indicated to the noble Lord, Lord Wallace of Saltaire, a lot of how we procure has to do with a civilised and intelligent relationship between the MoD and industry. I am pleased to say we have that, and we have had a great deal of co-operation from industry.

Lord Alton of Liverpool (CB): My Lords, I welcome what the noble Baroness has said about procurement—and of course the Procurement Bill now goes to the other place for consideration there in January—but will we learn significant lessons from what has happened with Ajax? Does she recall that, in June of this year, the Public Accounts Committee of the House of Commons said:

"The Department has once again made fundamental mistakes in its planning and management of a major equipment programme."

[Lord Alton of Liverpool]
The chair of the committee, Meg Hillier, went on to say that this has been deeply flawed from the start. Will the Minister at least undertake, as we proceed, to give the House updates on the progress of Ajax so that we know when it will be put into use and whether the safety issues that my noble and gallant friend raised earlier have been overcome?

Baroness Goldie (Con): I am pretty sure that, in the other place and here, the Government's feet will be held to the fire. We expect Ministers to come to the Dispatch Box and explain what the progress is and where we are in the process. In relation to procurement as a whole, there have been some very good examples of procurement. The MoD has made big changes on the back of NAO reports, many of which were critical, but we absolutely accepted some of the recommendations. We have made major changes: for example, we have implemented steps to more accurately estimate project costs, including improving risk forecasts through the use of reference-class forecasts, risk-costing pilots and the analysis of systematic strategical operational problems. We have also made reforms to how we deal with the senior responsible owner, so that there is much more continuity in the contracts. A lot of big changes have happened. I point to two recent procurements, the Type 31 and the Poseidon aircraft, as very good examples of really successful, positive procurement.

Children's Private Information: Data Protection Law

Question

3.21 pm

Tabled by ***Baroness Chapman of Darlington***

To ask His Majesty's Government what steps they are taking in response to the reprimand issued by the Information Commissioner's Office to the Department for Education on 6 November for breaching data protection law regarding children's private information.

Baroness Wilcox of Newport (Lab): On behalf of my noble friend Lady Chapman, and with her permission, I beg leave to ask the Question standing in her name on the Order Paper.

The Parliamentary Under-Secretary of State, Department for Education (Baroness Barran) (Con): My Lords, the department takes the security of the data that it holds extremely seriously. At the time of the breach, it was already working closely with the Information Commissioner's Office. The department has made significant, positive progress in improving its processes. The ICO has recommended in the reprimand notice that the department continue with its current improvement plans, and we will publish an update in early 2023.

Baroness Wilcox of Newport (Lab): My Lords, I thank the Minister for her Answer, notwithstanding—for noble Lords who are not aware—that the Information Commissioner's Office formally reprimanded the DfE for prolonged misuse of the data of 28 million students over a 16-month period. The department breached GDPR by allowing online gambling companies to use pupil information to build their age verification systems. The reprimand concluded that the processes put in place by the DfE were woeful. Can the Minister confirm how this happened, how the Government will prevent such a shocking breach happening again and whether they will apologise to the 28 million students affected?

Baroness Barran (Con): I absolutely understand why the noble Baroness probes hard on this Question. The Government have made significant changes to their learner registration system, and those were noted by the Information Commissioner's Office in its letter to the department in November this year. We previously did not have a centralised data protection function in the department. We were in the process of setting it up when we discovered this breach, and it is now in place.

Baroness Deech (CB): My Lords, is the Minister fully aware of the damaging effect of data protection law on universities? It has been used, rightly or wrongly, to prevent universities getting in touch with students' parents when they are in distress; it has been used to prevent the full publication of degree results, which opens the door to fraud. Does she agree that it is time to review the Data Protection Act and its damaging effect in those circumstances?

Baroness Barran (Con): The noble Baroness will be aware that the Government have brought forward the Data Protection and Digital Information Bill, which was introduced in the Commons in July this year. We are committed to making sure that our data protection systems are fit for purpose, including in relation to the issues raised by the noble Baroness.

Lord Scriven (LD): My Lords, the next scandal brewing is the use of facial recognition technology in schools and the department's lack of a grip on this issue. Despite repeated requests from the Biometrics and Surveillance Camera Commissioner to have legal oversight of the ethical use of that technology in schools, the Government have refused to agree. Why is this loophole still there, and when will it be closed?

Baroness Barran (Con): The noble Lord raises an important point. The safety of our children is of course fundamental and the department's role in protecting them is vital. If I may, I will write to the noble Lord on the details of his question.

Baroness Blower (Lab): My Lords, the organisation Defend Digital Me sets out that the DfE extended the possible distribution of identifying pupil-level extracts from the national pupil database when Michael Gove was Secretary of State. This was done

"to maximise the value of this rich dataset".

On reflection, does the Minister believe that that was a mistake?

Baroness Barran (Con): I do not believe that it was a mistake. If we look at any sector or industry, we see that the most successful use data intelligently, proportionately and safely. That is what the department intends to do.

The Earl of Clancarty (CB): My Lords, how much information is the Home Office allowed to get from the DfE for immigration enforcement purposes?

Baroness Barran (Con): I apologise; I am afraid that I will have to write to the noble Earl with the detail on that.

Lord Harris of Haringey (Lab): My Lords, in her response to my noble friend, the Minister did not answer the key question. She told us the criteria that the department used for its use of data, but this was clearly the use of data to make money. Is that appropriate for a government department in respect of records that relate to children?

Baroness Barran (Con): To be absolutely clear and for the avoidance of doubt, the department was not making money out of this. It was a previously legitimate user of the department's data which changed its business model and breached its contract with the department to sell the data.

Baroness Altmann (Con): My Lords, does my noble friend agree that we should be grateful that the department is now taking this matter seriously? I urge her to make sure that this is dealt with as speedily as possible; I know that she would like that to happen as well.

Baroness Barran (Con): My noble friend is right. I would stress that, unsurprisingly and rightly, the department took this breach extremely seriously. It was proactive in raising it with the Information Commissioner's Office and has a very active programme of work but, in relation to the recommendations from the Information Commissioner, the vast majority of them are completed and the rest are on track.

Lord Scriven (LD): For the record, the Minister has just said from the Dispatch Box that the problem arose because the company changed to a different business model. Is it not correct that the Information Commissioner's Office pointed out that the reason this happened was not that the change took place but that the department had no oversight of third-party use of that database?

Baroness Barran (Con): I am not sure that the Dispatch Box is the ideal place to go through the line-by-line analysis. The noble Lord is right that the way that the department's contracts were set up at the time did not give the same recourse if the terms and conditions of a contract were breached by a third party. That has now been changed.

Baroness Chakrabarti (Lab): My Lords, I find this whole saga staggering. It should give serious pause for thought to anyone who does not think that data protection and personal privacy matter. When the Minister replies in writing to the noble Lord's earlier question about facial recognition technology, will she include in that response, and perhaps place a copy in the Library, an answer as to whether CCTV cameras on school premises are provided by Hikvision or any other Chinese companies?

Baroness Barran (Con): I would be delighted to add that information.

Baroness Blower (Lab): My Lords, again according to the organisation Defend Digital Me, the ICO found that the DfE's policy on records was

"designed to find a legal gateway to 'fit' the application".

If the Minister recognises that, can she say that it simply will never happen again?

Baroness Barran (Con): I tried to be clear that the department has made very significant changes in its approach to data protection and privacy in relation to our internal systems and processes, to our communication with data subjects about their privacy, and to the culture of the department and the training and support that we put in place for colleagues.

Lord Watts (Lab): Are the people who oversee this new model the same as those who oversaw the previous one? Where is the accountability in the system? What happened to those people, who should have known better and should not have let this happen?

Baroness Barran (Con): My understanding is that we relied on an existing advisory service at the time of the data breach and that those functions have now been brought in house. We have a dedicated data protection officer, who sets policy for the whole department.

Lord Harris of Haringey (Lab): My Lords, can the noble Baroness expand on this third-party provider who changed their business model? How many contracts does that third party have with government in respect of other aspects of data?

Baroness Barran (Con): My understanding is that that third-party provider is no longer trading.

Lord Hunt of Kings Heath (Lab): My Lords, can the noble Baroness confirm that a senior official on the board of the department, at Permanent Secretary or director-general level, was responsible for what happened? What action was therefore taken?

Baroness Barran (Con): I have tried to explain to your Lordships that we did not have a centralised data protection function at the time of this breach. As a result, different teams had different policies across the department. That is no longer the case.

Iran: Execution of Protesters

Private Notice Question

3.31 pm

Asked by ***Lord Scriven***

To ask His Majesty's Government what assessment they have made of reports that the Iranian regime is carrying out executions against anti-government protestors.

The Minister of State, Foreign, Commonwealth and Development Office (Lord Goldsmith of Richmond Park) (Con): My Lords, I am sure that the House shares the outrage expressed by the Foreign Secretary on Thursday at the Iranian regime's execution of protesters. Mohsen Shekari and Majidreza Rahnavard are tragic victims of a legal system in which disproportionate sentences and forced confessions are rife. The UK is working with international partners to hold Iran to account, including by sanctioning 10 judges and prison officials last week. Iran must be in no doubt that the world is watching. It cannot continue to unleash violence against its own people to stifle voices of dissent.

Lord Scriven (LD): I thank the Minister for that Answer, but two brave 23 year-old Iranians, standing up for democracy and women's rights, have been brutally murdered on jumped-up charges by those in power in Iran. As the head of a Norwegian human rights watch body said, if these executions are not met with serious consequences for the Iranian Government, we will face mass executions of protesters. What extra serious consequences will the Government inflict on the Iranian regime?

Lord Goldsmith of Richmond Park (Con): I acknowledge, as I am sure we all do in different ways, the breathtaking courage of protesters in Iran, particularly the women, whose every act of defiance comes with the risk of extreme persecution and even death. It is really something to behold.

The UK of course condemns Iranian government activities, not least the executions that we are discussing now. Across international fora, we are calling Iran out at every opportunity and amplifying the voice of those protesters. We have condemned the regime's crackdown on protesters alongside G7 partners and at the UN Human Rights Council, General Assembly and Security Council. We are working alongside the US and partners to remove Iran from the UN Commission on the Status of Women, and, on a bilateral level, we continue to challenge Iran's reprehensible actions at every opportunity, including summoning Iran's representative in the UK to the Foreign Office on numerous occasions.

On Friday 9 December, just a few days ago, the UK announced sanctions on 10 officials connected to Iran's judicial and prison systems, including judges linked to the revolutionary court, which sentenced those two people to death. On 14 November, we announced sanctions on 24 leading political and security officials involved in the current crackdown on protesters. In October, we sanctioned the morality police in its entirety, as well as its leader and five other officials responsible for human rights violations. We take Iran's reprehensible actions very seriously indeed.

Lord Polak (Con): My Lords, I listened carefully to the Foreign Secretary's positive and forward-looking speech this morning, but there was no mention of Iran at all. As my noble friend said, Iran is a serious danger. I will make two points. First, the Minister mentioned the commission on women's rights. I understand that there is a vote on Wednesday at the UN. Can he assure me that we will vote the right way? Secondly, while he gave a long list of what we have done, surely it is now time for us to proscribe the IRGC. It has to be done.

Lord Goldsmith of Richmond Park (Con): My noble friend makes an important and powerful point. It is not for me to discuss the proscription of individual cases. My colleagues in the Foreign Office will have heard what he had to say, which echoes what many others in this place have said on various occasions. In relation to the vote coming up in the next few days, I assure him that we will be voting the right way.

Baroness Whitaker (Lab): My Lords, although these executions are an outrage, they are not the only judicial outrage perpetrated by the Government of Iran. Will His Majesty's Government pursue the injustice of extending the sentence of the longest-serving prisoners of conscience in the world—Fariba Kamalabadi and Mahvash Sabet, two women of the Baha'i faith, aged 60 and 69—for nothing other than professing their religion?

Lord Goldsmith of Richmond Park (Con): My Lords, the Iranian regime has a long, dark record of persecution—not just of religious minorities but of the LGBT community and, as has already been discussed, anyone who stands up to the regime in any way. The atrocities which the noble Baroness has just referenced are par for the course for a regime which is beyond the pale in its actions towards anyone not part of the mainstream establishment within Iran.

Baroness Falkner of Margravine (CB): My Lords, the Minister has emphasised that he is working with international partners on this issue. What conversations have been had with Pakistan and Armenia, both countries that voted at the UN Human Rights Council against establishing an independent investigation into these human rights violations? Have there been any conversations in the light of the large amounts of ODA of which these countries are in receipt, thanks to the British taxpayer?

Lord Goldsmith of Richmond Park (Con): My Lords, I assume that these discussions are happening, but I do not know as I am not party to them. I will convey the noble Baroness's question to the Minister responsible, who is not able to be here today to answer this Question.

Lord Purvis of Tweed (LD): My Lords, the barbarity of these public executions is obviously also intended to intimidate the population of Iran. I share the Minister's admiration of the women and particularly the young women there. Further to the immediate question about Resolution S-35/L.1 to establish an independent international fact-finding mission, I also noted that Qatar and the UAE abstained. What discussions have His Majesty's Government had with

our allies in the Gulf about their considerably mixed messages of support for pro-democracy groups, especially concerning women and children? What practical support will the Government provide to the independent international fact-finding mission for it to have any teeth whatever?

Lord Goldsmith of Richmond Park (Con): My Lords, discussions with representatives from Qatar, the UAE and others are regular and ongoing. As I said in answer to the previous question, these are not discussions that I have been having, so I cannot provide an authoritative answer. I will include a response to the noble Lord's question in my follow-up to the previous one.

The Lord Bishop of Chelmsford: My Lords, the news of the executions in Iran is deeply concerning and heart-breaking. I declare an interest as someone who originally comes from Iran and still has friends and loved ones there. There are likely to be many more executions still to come, with a dozen death sentences already issued. I would be grateful if the Minister could outline what support the Government are providing to Iranians in the UK who are seeking to ensure the safety of loved ones in Iran.

Lord Goldsmith of Richmond Park (Con): As noble Lords will know, it is not always the case that those who have been arrested and held by the Iranian regime contact the UK Government and request support, either directly or through their family. Where that support is requested, however, the UK Government do everything they possibly can to exert pressure and facilitate the speedy resolution of whatever the case is. I cannot go into individual cases; there are one or two that I have personally been involved in, and I can tell you that dealing with the Iranian regime is incredibly difficult at every step of the way, as the right reverend Prelate will know.

Lord Anderson of Swansea (Lab): My Lords, was it not absurd that Iran was put on the UN women's commission in the first place, given its long record? Surely the problem is that the Iranian regime believes that it is in an existential fight for survival and therefore we—certainly on our own—have no influence. In addition to the efforts that the Government have set out thus far, what are we doing to isolate Iran? Where, if any, are the pressure points which might influence the regime?

Lord Goldsmith of Richmond Park (Con): The UK maintains a wide range of sanctions designed to constrain Iran's destabilising activity within the wider region. We work in the multilateral fora to—as the noble Lord suggested—encourage the world as much as possible to speak with one voice in condemnation of Iran, with some success but not entirely. In November, we supported a successful Human Rights Council resolution establishing a mechanism to investigate the regime's actions, and we will work with partners to ensure that it delivers for the Iranian people. In relation to the first point that the noble Lord made, the truth is that there remains a place in the international community for a responsible Iran: one that respects the rights and freedoms of its people. Across international fora and working closely with our partners, we will continue to expose the regime's appalling human rights violations, pursue accountability and amplify the voices of the Iranian people.

Lord Cormack (Con): My Lords, is it not very significant that members of the Ayatollah's own family have denounced these barbaric practices? Should we not give real publicity to what has been said about him by them?

Lord Goldsmith of Richmond Park (Con): My noble friend makes an important point. In the sewer that is Twitter, the one shining light is its ability to transmit and convey images of the really staggering bravery on the part of these protesters. Without social media, it is very hard to see how the world would be as awake to what is happening in Iran as it is. Whenever I find myself feeling gloomy about the filth on that social media site, I remind myself that it does have an incredible role to play. These protests are a pivotal moment for Iran. The Iranian people have made it clear that they will no longer tolerate violence and oppression. The UK stands with ordinary Iranians who are bravely risking their lives to demand a better future. This is an authentic grass-roots call for change; the regime has to stop threatening the lives of ordinary people in Iran and elsewhere, including the UK.

Lord Collins of Highbury (Lab): My Lords, first, on Friday, did the Foreign Secretary raise with the Iranian chargé d'affaires the question of threats to UK nationals and people working in the free press in this country? I asked the Minister about that last week. Secondly, what does the Minister think of the Foreign Secretary's speech today, in which he said that it is not about

"dictating or telling others what they should do: we want to balance a mutually beneficial relationship"?

Is this not sending mixed messages? Is it putting things like trade above human rights?

Lord Goldsmith of Richmond Park (Con): Absolutely not. The UK's position on Iran has been rock solid for a very considerable time, and there is no question of the UK in any way softening its approach to the behaviour of the Iranian regime. The issue of Iran's extranational activities, particularly in relation to British nationals in the UK, was of course raised. I discovered today that the noble Lord, Lord Alton, has been sanctioned; I am not sure there is any country that has not sanctioned him. I have to say, first, that this is a tribute to his own relentless campaigning on human rights issues in Iran and elsewhere, and, secondly, that I suspect the rest of the House, like him, will treat such a move with the contempt it deserves.

Lord Singh of Wimbledon (CB): My Lords, the present revolution, or resistance, in Iran results from the cruel treatment of its brave women. The National Council of Resistance of Iran, led by a woman, has put forward a 10-point plan for democracy, which includes the absence of any sort of religious rule—a secular democracy—freedom of belief for all, and equal rights for women. Does the Minister agree that this is the right direction of travel for Iran?

Lord Goldsmith of Richmond Park (Con): Absolutely. In Iran, the law already provides some protection—for example, the Jewish community has protection within the constitution. However, in reality it is meaningless. If you are a member of the Jewish community in Iran, you will at the very least keep your head firmly down. The protection provided in law is not provided in practice, but of course that plan is the direction of travel that we want. For decades, the morality police have used the threat of detention and violence to control what Iranian women wear and how they behave in public. As the Iranian people have made clear, that institution is also intolerable. As noble Lords know, there were suggestions that the morality police will be disbanded, and we must hope that this is the case.

Baroness Hussein-Ece (LD): My Lords, in response to my noble friend Lord Scriven's question, the Minister gave a list of very welcome actions taken by the Government, but these executions are happening right now. They have taken place over the past few days and are continuing, and some of them are of children. Can the Minister say what extra actions are going to be taken or are being taken in light of these continuing atrocities?

Lord Goldsmith of Richmond Park (Con): My Lords, there are a whole range of activities and actions that the UK can take bilaterally—which I have already mentioned—in relation to sanctions and trying to squeeze those responsible at the highest levels within the regime as much as possible, as well as multilateral activity of the sort that I mentioned earlier. There are Iranian protesters who look to the UK for safe passage, and that is something we provide, but the system can no doubt be improved in any number of ways. We take a measured approach to engaging with both Iranian civil society and the diaspora here in the UK. We are clear that, ultimately, choosing Iran's Government is a matter for the Iranian people, but we will do everything we can to ensure that the Iranian people's voices are heard.

Special Public Bill Committee (Electronic Trade Documents Bill)

Membership Motion

3.48 pm

Moved by ***Baroness Williams of Trafford***

That, as proposed by the Committee of Selection, the following Lords be appointed to the Special Public Bill Committee on the Electronic Trade Documents Bill [HL]:

Thomas of Cwmgiedd, L. (Chair), Bassam of Brighton, L., Clement-Jones, L., Davies of Brixton, L., Harlech, L., Holmes of Richmond, L., Lansley, L., Lindsay, E., Parkinson of Whitley Bay, L.

That the Committee have power to send for persons, papers and records; and

That the evidence taken by the Committee be published, if the Committee so wishes.

Baroness Williams of Trafford (Con): My Lords, on behalf of my noble friend the Senior Deputy Speaker, I beg to move the Motion standing in his name on the Order Paper.

Motion agreed.

Combined Authorities (Mayoral Elections) (Amendment) Order 2022

Local Authorities (Mayoral Elections) (England and Wales) (Amendment) Regulations 2022

Police and Crime Commissioner Elections and Welsh Forms (Amendment) Order 2022

Motions to Approve

3.48 pm

Moved by ***Baroness Scott of Bybrook***

That the draft Orders and Regulations laid before the House on 1, 3 and 14 November be approved.

Considered in Grand Committee on 5 December.

Motions agreed.

Animals and Animal Health, Feed and Food, Plants and Plant Health (Amendment) Regulations 2022

Trade in Animals and Related Products (Amendment and Legislative Functions) Regulations 2022

Agricultural Holdings (Fee) Regulations 2022

Restriction of Hazardous Substances in Electrical and Electronic Equipment (Exemptions) (Fees) Regulations 2022

Motions to Approve

3.49 pm

Moved by ***Lord Benyon***

That the draft Regulations laid before the House on 18 and 20 October be approved.

Relevant documents: 18th Report of the Joint Committee on Statutory Instruments, 18th Report of the Secondary Legislation Scrutiny Committee (special attention drawn to the second and fourth instruments). Considered in Grand Committee on 5 and 6 December.

Motions agreed.

Genetic Technology (Precision Breeding) Bill

Committee (1st Day)

3.50 pm

Relevant documents: 8th Report from the Constitution Committee and 19th Report from the Delegated Powers Committee

Clause 1: Precision bred organism

The Deputy Chairman of Committees (Baroness McIntosh of Hudnall) (Lab): My Lords, I should advise the Committee that, if the following amendment is agreed to, I shall not be able to call Amendments 2 to 9 by reason of pre-emption.

Amendment 1

Moved by ***Lord Winston***

1: Clause 1, page 1, leave lines 4 to 6 and insert—

"(1) In this Act "directed bred organism" means a directed bred plant or a directed bred animal.

(2) For the purposes of this Act an organism is "directed bred" if—"

Member's explanatory statement

This amendment is to probe the appropriateness of the term "precision bred".

Lord Winston (Lab): My Lords, when this Bill was considered by the various powers that be in the House, including the Constitution Committee and the committee on the Bill itself, there was widespread concern from everybody who looked at it. They clearly saw that it was imprecise, not entirely intelligible and of a particular, difficult and complex scientific nature; I agree with that.

One of the problems I have in speaking to my amendments is that, to some extent, they must be probing, because my real problem is that the scope of this Bill is seen as one of the release of organisms into the environment. However, inevitably, the science behind that is of an essential aspect. I am very glad that the noble Lord, Lord Benyon, is answering for the Government, because I felt that his response to me at Second Reading was very helpful; it would have been good to discuss some aspects of this Bill, which we may still have time to do before Report.

To start, one of the really big issues, which I dealt with to some extent in my Second Reading speech, is the nature of precision breeding. As I explained, there is no such thing as precision in biology. Biology is not like physics, and it is certainly not like chemistry. It is a constant response to the environment in a way that does not apply to the other aspects of science. One of the issues here concerns the definitions that we are dealing with in this Bill and, to some extent, in my various amendments—forgive me for my very poor sight but I need to read the numbers; I cannot see otherwise—including Amendments 10, 11, 13 and 14.

One of my problems—it is a problem that many scientists have—is the nature of what is seen as gene editing and a genetically modified organism. There are many different ways of modifying an organism, be it animal or plant. I mentioned in my Second Reading speech that the first time this was done was by the injection of DNA into the egg by Jon Gordon. As we know, that resulted in many mutations and abnormalities in the animals, which were quite horrific to see; to some extent, that is one of the reasons for one of the later amendments that I have tabled for discussion. Moreover, with all the other methods that have been used since—whether it is gene insertion using electroporation or gene insertion via various other methods, such as using viral vectors and other vectors to carry the DNA into the nucleus—you get very big disruption of the genome.

It is perhaps not fully recognised that gene editing is not, as the noble Lord, Lord Benyon, kindly suggested, like taking a large paragraph of text and just replacing it with three or four different letters to make a new word. In fact, it is calculated that there are some 6.4 billion letters in the human genome—it is vast—and what is extraordinary is that the mutation of one single letter in that genome can result in a horrific disease.

The commonest genetic mutation affecting humans is probably cystic fibrosis, which until recently was a deadly disease. All you need to get cystic fibrosis is a deletion of three base pairs in the delta F508 part of the protein. That leads to a mutation that results in children being very severely handicapped, sometimes not growing or not able to digest their food and, in particular, having serious problems with their lungs. Consequently, not many of these children have a full life; they certainly do not have a full length of life and are often severely handicapped—even today, with modern so-called precision medicine trying to affect the genes, which is not nearly as successful as we would like.

That is just three base pairs out of those billions, and it is a good example of a very common genetic mutation that affects perhaps one in 20 of the British population. That means a one in 400 chance of a child's father and mother both having it, in a family who would not suspect that they had that genetic disorder. Most genetic disorders are not anything like that common; some of them are extremely rare. None the less, they generally cause pretty devastating disease.

I am not suggesting for a moment that this necessarily applies directly to the Bill, but it is a very good model for trying to understand that, even with CRISPR-Cas9, for example, which is probably the main technology we are currently using for this kind of genetic modification, the so-called genetic editing is not exactly free of the chance of causing mutations. It is much less likely—for example, with Cas9 in plants, which is widely used, it undoubtedly causes mutations occasionally in the plant, and sometimes we do not know what the results of this mutation may be. Most of them will be completely harmless but some of them may change the way a gene affects, often quite severely, and its expression. By the word "expression", we mean how a gene works. For example, a gene which expresses growth means that the organism will grow, and so on.

With regard to animals, we know that different species are very different in how they respond to even minor changes in their genes. Although CRISPR-Cas9 does not actually introduce DNA into the cells, it facilitates the introduction of DNA through the process of changing the RNA. That is the difference, but it is not entirely free of mutations. Mutations can occur occasionally at the point where the DNA is cut—that is, with a double-stranded cut in the DNA—or it can occur remotely across the vast genome that animals and plants have. They can be anywhere. Most of the time, that disruption will not necessarily be in a coding protein, but that does not mean to say that it will be free of any effect on the organism.

[Lord Winston]

That is one of the serious issues that we did not really get to in our Second Reading discussion, and nor was it properly discussed in the House of Commons. I read the *Hansard* report of the debate, and it was quite deficient in many ways; it was not a very good debate in terms of the science.

The fundamental problem is the uncertainty that you may cause genetic modification—genetic mutation—that is unwanted and unreliable, and is not uncommon in plants with Cas9, which is part of the CRISPR process, in most cases. There are other ways of doing this: there is a process called TALENs and there is a process using nucleases, but we do not need to go into the detailed science. They all present problems in different ways of getting the DNA into a cell.

4 pm

Of course, one of the issues when we say "into a cell" is that we are talking about an animal at the beginning of its life. It is affecting not just the somatic cells—in the skin, brain, fat and muscles—but the germ cells. That means that any mistakes produced are heritable, and can be in completely unpredictable ways. This is one of the reasons for some of my later amendments, because heritability is clearly important as you want, first of all, to breed plants and animals that are free of risk. That is a fundamental difficulty in our discussion.

The evidence that CRISPR does not cause mutations is simply not clear. Often, the only way we can decide whether the genome remains "normal" is, in fact, by doing extensive research on the genome of that particular creature.

One of the other issues is that the Bill offers massive opportunity for better science. If we looked in greater detail at the way we manipulate plants and animals and funded it better, we would arrive at some useful conclusions that might help us with the genetics of a range of things, including medicine, gene therapy and all sorts of problems that affect the animal and plant kingdom. One of my concerns about the Bill is that we are simply releasing organisms but not studying them in detail before we do so or recording that. This subject will come up in later discussions on the Bill.

One of the issues dealt with in my amendments is the terminology, some of which is very strange. For example, in Amendment 13 I have suggested removing the word "stable", because an organism's genome being stable can mean various things. Does it produce progeny, or does stability mean that the genes function in a constant way, generally expressing the requirement you need? One of the problems we have with all genetic alterations is that, when you change the position of a gene in the genome or how it is printed, there is a risk that you may change expression. That is one of the reasons why multiple copies are sometimes included, an issue which is also addressed in the Bill. Sometimes, that will extend the gene's effect—for example, increasing growth or, in some cases, decreasing it. That is one of the issues addressed in Amendment 13.

In Amendment 14 I have suggested removing the word "no" from Clause 1(5). This is partly to tease the Minister: I am changing just two letters, but arguing that that completely changes the whole paragraph in a way that does not make it at all accessible.

My real criticism, which we have discussed and which I do not want to go on about at great length at this stage—there are many amendments on the Order Paper—is the lack of clarity on some of the issues. I do not think people understand what is being done, and they need to.

One of the biggest deficiencies that I hope the noble Lord, Lord Benyon, will take on board—it is not an amendment at this stage, by any means—is that we are not trying to get the public with us. Over 30 years ago, we saw a catastrophe for this kind of science. It affected so much science, which was brought into disrepute by the sudden release of genetically modified organisms, as people felt they would be dangerous to their health. Indeed, they might well be, and Members will be talking about these issues later on in the Bill. That resulted in a complete negation of GMOs, which were given a bad name. Of course, we are still producing GMOs, in effect, but in a slightly more precise, although not completely precise, way. The risks are still there, and we need to consider them.

Finally, the problem with propagation is that once you propagate organisms, you end up with all sorts of effects on the environment that you really do not expect. That will obviously come up later, and it is one of the concerns addressed in the amendments I have put down today. I beg to move.

The Deputy Chairman of Committees (Baroness McIntosh of Hudnall) (Lab): My Lords, I draw to the attention of the Committee that in the amendment we are about to discuss, the Marshalled List says,

"leave lines 4 to 6".

I believe it should say "leave out" and that is what I propose. If I am wrong, I hope somebody will shout.

Baroness Bennett of Manor Castle (GP): My Lords, it is a great pleasure to follow the noble Lord, Lord Winston, and, indeed, our very acute Committee chair. I will speak to my Amendments 11 and 86 in this group. It is a great pleasure to follow the House's acknowledged expert, who set out very clearly the major problems with this Bill and, indirectly, made the arguments for the two amendments I am presenting here. It is perhaps worth starting with my Amendment 86, which amends the Short Title of the Bill, leaving out "Precision Breeding" and inserting "Genome Editing". I am very happy to debate whether that should be "gene editing" or whatever, but I think the noble Lord, Lord Winston, clearly set out the reasons why we should not be debating a Bill called "Precision Breeding". As he said, there is no such thing as precision in biology.

There are many areas of science in which "precision" is appropriate and extremely useful. We think about elements of physics and mechanical engineering, say, and talk about going down to millimetres, micrometres, nanometres. We can look at how those might change when the temperature changes, for example. All of those things will be eminently, entirely predictable. That is true of physical properties, but it is not true of biological properties, as the noble Lord, Lord Winston, clearly set out.

I covered this issue extensively at Second Reading, so I am not going to go into it at great length, but essentially, precision breeding is an advertising slogan; it is not a legal description. I do not believe that an advertising slogan should have a place in the title of a Bill. Interestingly, when it was put to me that I should seek to amend the Short Title, a technical expert said to me, "You will never get that through the Clerks". In fact, it went through without a murmur. I think there is a real awareness that this Bill is not properly titled.

Lord Winston (Lab): On a point of information, the noble Baroness was a great deal luckier with the Clerks than I was, as I tried the same tactic and was told quite firmly that I could not do that.

Baroness Bennett of Manor Castle (GP): I thank the noble Lord for his intervention. I do not know how that happened, but I think I might take that as a seconding of my Amendment 86. Noble Lords might say that it is only the title and it does not matter, but it is how people will identify the Bill.

I am going to refer a number of times to a Defra press release, dated 29 September 2021, which, all the way through, refers to "gene editing". That is what it is telling people the Bill is about, drawing a very clear distinction, as it sees it, between gene editing and genetically modified organisms, an issue I will return to shortly. That is the case for amending the Short Title of the Bill. What we are talking about is not precision; it is not marked by exactness, and there are real problems if the Bill is not named clearly.

I come to something that is arguably very significant and considerably more impactful in the nature of the Bill. This is my Amendment 11, which would exclude the use of exogenous genetic material in the creation of, or remaining in, so-called precision-bred organisms. Here I need to venture into the depths of this a little, I am afraid; I apologise to the Committee for that. If we look at many of the definitions that describe gene editing, we see that they say this is simply removing genes from an organism or adding genes from a different variety of the same organism.

That is different from genetically modified organisms. The noble Lord, Lord Winston, suggested that, 30 years ago, when GMOs were being debated, they got an undeserved bad name. But look at some of the things that have been done with GMOs: for example, a salmon that combines the genes from three different types of fish and grows unnaturally fast, reaching adult size twice as fast as its wild relative, to be released into the environment with obvious and potentially massive impacts; or, perhaps even more indefensible, the transgenic zebrafish, bred with genes from jellyfish or coral, which give them a glowing effect under certain light conditions. These genetically engineered animals were popular in aquariums and have now escaped into the natural environment, with effects we have yet to understand.

We are being reassured that gene editing is not like that; that it is a different kind of thing. Certainly, that is what the Defra press release of 29 September, which I referred to earlier, said in the name of George Eustice, the Minister:

"Gene editing is different from genetic modification, because it does not result in the introduction of DNA from other species".

That is what the public is being told by the department.

We are going to hear in this debate a great deal about CRISPR, and I shall say this only once: CRISPR stands for "clustered regularly interspaced short palindromic repeats". This is the hallmark of a bacterial defence system which forms the basis of genome editing technology. It was first discovered in archaea, a branch of the tree of life that was itself discovered only in 1977—we are talking about very recent science here. The clue is in the description. This is using the bacterial system. The key element of gene editing is the insertion of genetic material from bacteria. That material may or may not be fully removed at some point in the organism's development, and, as the noble Lord, Lord Winston, set out very clearly, once we put something in, we do not necessarily understand what impact there might be in the current generation, or potentially in future generations.

I am going to borrow and excellent phrase from the joint Soil Association, Friends of the Earth and GM Freeze briefing on the Bill: it says that the genome is

"more like an ecosystem than a codebook."

Personally, I tend to say that DNA is not a machine blueprint, because that is the metaphor—the idea of animals as machines—that dates back to the philosopher René Descartes, who has a lot to answer for and still dominates far too much of our discussion. We do not have the understanding of how biology and biological systems work. We think about them as machines and they are absolutely, definitively not.

This matters because mixing species, which is what we are doing here with gene editing, is not something that generally happens in nature. Certainly, there is horizontal gene transfer—which is of great concern in the area of antimicrobial resistance, an issue that I do a great deal of work on—but that is a far more limited occurrence and occurs mostly within kingdoms of living things rather than across different kingdoms of living things, which is what we are doing here. My Amendment 11, saying that we cannot introduce genetic material from other species, is doing only what the Government, in their own information about the Bill, say they want to do. That is why I believe we should have Amendment 11.

4.15 pm

Lord Krebs (CB): My Lords, I thank the noble Baroness, Lady Bennett of Manor Castle, for raising the question of exogenous DNA, which I mentioned at Second Reading, as did she. I am sorry to say that, on this occasion, I disagree with the noble Baroness. I think her amendment goes too far, since, as she explained so clearly, the current techniques of gene editing require the use of exogenous DNA not only for the CRISPR-Cas9 construct but for the insertion mechanism—for instance, Agrobacterium—and for the antibiotic resistance filter used to check that the changes one intended to achieve have been achieved. Furthermore, at the end of the gene-editing process, there could be tiny fragments of this exogenous DNA left in the gene-edited organism. As I mentioned at Second Reading, although there are new techniques being developed that will obviate the need for gene editing with exogenous DNA, they are

[Lord Krebs]
not yet ready for mainstream use. Hence, in my view, Amendment 11, if accepted, would in effect kill off gene editing for the near future.

Should we be worried about exogenous DNA? The noble Baroness, Lady Bennett, clearly thinks we should. The Bill deals with the issue of exogenous DNA by stating in Clause 1(6) that any remaining exogenous DNA must not code for a protein if the precision-bred organism is to be considered as having been produced by a process equivalent to traditional breeding. Does that provide us with sufficient reassurance?

I am most grateful to Professor Wendy Harwood and her colleagues at the John Innes Centre, in Norwich, for their further advice. My initial thought in considering this problem was that the wording in the Bill could be tightened to say in Clause 1(6) that the exogenous DNA, if there is any left, should have no effect on the phenotype of the precision-bred organism; in other words, no effect on the appearance or biological properties of the edited organism. This would be a more stringent criterion than that requiring that the fragment of DNA could not code for a protein.

As the noble Lord, Lord Winston, so clearly explained to us in his excellent introduction, the principal way in which DNA is expressed in the phenotype is by genes coding for proteins that are the building blocks of life. However, there are also other ways in which nucleic acids can affect the phenotype; I am sorry if this is a bit technical. One example is RNA interference, a molecular process in which short strands of RNA can act to silence a gene. There are other examples of gene regulation by RNA strands that are not transcribed to produce a protein.

There are mechanisms not covered by Clause 1(6) by which exogenous DNA could affect the functioning of the precision-bred or gene-edited organism. Does this justify a change in the wording of the Bill? The view from the John Innes Centre is that it is unlikely that non-coding DNA could exert a phenotypic effect, although this is both theoretically and practically possible. It argues that these possibilities should be tested for in any gene-editing strategy before a product is developed. If this is the case, it would not be necessary to require it by regulation. Furthermore, the scientists at the John Innes Centre argue that the requirement of "no phenotypic effect" might lead to the conclusion that there has to be exhaustive testing for this in an unspecified range of environmental conditions.

I can see both sides of the argument. On the one hand, there is an argument for ensuring that any remaining exogenous DNA has no discernible effect on the phenotype of the precision-bred organism. That would be a more stringent criterion than Clause 1(6). On the other hand, one does not want disproportionate regulation that stifles innovation.

I do not expect the Minister to answer on the technical issues right now but could he—if not right now, before Report—put down in writing an explanation of why making the requirement in Clause 1(6) that any exogenous DNA should have no phenotypic effect would be disproportionate and, if it is disproportionate, whether other steps could be taken to manage the risk of non-coding effects on the phenotype of gene-edited organisms?

Baroness McIntosh of Pickering (Con): My Lords, I rise more to inquire than to support particular amendments. I am grateful to the noble Lord, Lord Winston, for tabling his amendments. I imagine that they are probing amendments, and that is the spirit in which I wish to address them. I declare that I am an honorary associate of the British Veterinary Association, and I am grateful to it for the briefing that it has given today.

The first question I put to the Minister for my better understanding is what the difference is between cloning an animal and gene-editing an animal or animal product. I did not follow it that closely, but I was very proud that my alma mater, Edinburgh University, was the first university in the world, I understand, to clone an animal—Dolly the sheep. However, it was not entirely successful as I understand she had a very short life. Obviously, one has to ask whether the reason for her curtailed life was that she had been cloned and not produced in a normal way.

The BVA brief that I have received today states:

"Prioritisation of animal health and welfare is essential, as is the use of adequate product labelling to enable transparency and consumer choice"—

I know we will come to those amendments in a different group. In particular, the BVA states, and I support this:

"Breeding and genetic modification must be used in an ethically responsible way to improve animal health and welfare, increase efficiency, and support sustainable agriculture."

It goes on:

"The Bill is misleading and proposing deregulation based on the incorrect premise that 'traditional breeding' results in characteristics which can be assumed 'safe', and therefore gene-edited organisms which produce the same outcome are also 'safe'. This ignores the potential for mutations."

The Bill has "precision breeding" in its title, but this group of amendments goes to the fact that it can never be precise, because we can never be sure of the consequences, so perhaps it should be called the "imprecise breeding" Bill.

The reason that I am tempted to support a number of amendments in this group, particularly Amendment, 1 is the very fact that it states that,

"'directed bred organism'" means a directed bred plant or a directed bred animal."

It is important to understand in what way that plant or animal has been directed and that there is scope for an imprecise outcome, an unexpected outcome. As the noble Lord, Lord Winston, for whom I am full of awe and praise, with his widespread knowledge and, even more, his experience, said, we could be creating something of which we cannot control the outcome. I am not saying that I stand in the way of that, but I would like better to understand what it is.

There was a news story last night about a little girl whose cancer had not been cured until they came up with a gene-editing formula. They edited genes and implanted them in her, and it looks as though she may now have a cure. However, we are at the very early stage of these procedures, as I understand it, and I believe that there is some sympathy still for the view that the European Union took, which is widely criticised in this House and the other place. Probably the reason

that the European Union and its institutions overreacted was the widespread fear among consumers. I think that fear is still there. I know that the noble Baroness, Lady Jones of Whitchurch, has tabled a number of amendments which we will deal with in another group and with which I have a degree of sympathy. As I said at Second Reading, if this procedure, this form of breeding is so good, why can we not be told about it on labelling? Why should consumers have the barrier of having to go to a register? With those few remarks, I support the thinking behind some of the amendments in this group.

Baroness Bakewell of Hardington Mandeville (LD): My Lords, I apologise to the Committee for not being present at Second Reading. I had a hospital appointment and, having waited some time for it, did not want to postpone it for what could have been another three months. I did, however, watch the debate on Parliament TV and will make a short contribution.

The noble Lord, Lord Winston, made a very valuable and knowledgeable contribution in seeking clarification on the definitions within the Bill. It is important that we all understand completely what the Government mean by the various terms and what the outcomes will be, especially if there are likely to be unintended consequences. It is the role of this Chamber to ensure that there are no unintended consequences or mutations in the future, and that the quality of life for any animal so produced needs to be good. That was not the case with Dolly the sheep. It is important that the phrases used in the Bill are easily understood by those who will affected by its implementation. As the noble Lord, Lord Winston, said, the results of previous debates on GMOs received a bad press, which did the science no favours at all.

In Amendment 86, the noble Baroness, Lady Bennett of Manor Castle, also seeks clarification. She wishes the Title of the Bill to be changed so that the somewhat anodyne phrase "Precision Breeding" would be replaced by "Genome Editing". I have sympathy with this proposed alteration, as I believe that phrase is more accurate and more likely to be easily understood by the public than "Precision Breeding". The Bill is, after all, intended to modify and edit the genome of plants in a shorter timeframe than would normally happen. Being married to an aeronautical engineer, for me, and possibly others, a phrase such as "precision engineering" conjures up an entirely different picture than the thrust and purpose that the Bill has. I look forward to the Minister's response to this short group of amendments, which sets the tone for the rest of our debate today.

Baroness Hayman of Ullock (Lab): My Lords, I thank my noble friend Lord Winston for introducing these amendments. This group explores why "genome editing" has been changed to "Precision Breeding" in the Title of the Bill and throughout it, when, as my noble friend pointed out, it has no scientific meaning. As he said, there is no such thing as precision in biology. He clearly, and in some detail, expressed his concerns about the implications of the Bill. As he also said, as yet there has been no detailed debate during the Bill's passage around the science. I am sure that we will have that debate in your Lordships' House, as there are some very eminent people here who know far more about the science than I could ever hope to learn.

My noble friend's amendments quite rightly probe the Government's thinking around the terminology. Importantly, he raised the fact that what we need as an outcome of the Bill is the breeding of plants and animals that are free of risk. Again, he talked about the implications of hereditary traits and the fact that the Bill's focus is on releasing organisms. We need to think much more about how that is happening, and what the implications are as we put the Bill through into becoming an Act.

We know that in the Bill and during the debates—

Lord Krebs (CB): I am sorry to interrupt the noble Baroness, but I want to make the point that when we talk about "free of risk", we have to get things in perspective. In so-called conventional breeding, the parent seeds or germline are often irradiated to create a large number of random mutations and then a new cross-bred strain is produced. That often involves shuffling maybe 20% or 30% of the genome and is not regulated at all. When we say "risk free", we know that conventional breeding is not risk free. The Braeburn apple was introduced 30 or 40 years ago as a new variety—a hybrid of two earlier varieties—without any testing, and that could have had detrimental consequences for human health or the environment. Nothing is risk free, so let us get risk in proportion.

4.30 pm

Baroness Hayman of Ullock (Lab): I thank the noble Lord, Lord Krebs, for his very important point. We need to think about where we want to go with this and how we want those regulations to come in as we go through the Bill. I am sure that we will be having some very interesting debates on that as we move forward. Clearly, the whole purpose of the Bill is about deregulating the law on gene editing so that we can actually move forward beyond the traditional breeding processes.

The purpose of this group is to look at the definitions as to how we move forward; what we mean by that; and whether the Bill has the right definitions in it. The noble Baroness, Lady McIntosh of Pickering, talked about unintended outcomes, for example. The interesting thing for me is whether "precision breeding" is the right terminology. Why have the Government picked that terminology? That is something that a lot of noble Lords raised on Second Reading, and again now.

The noble Baroness, Lady McIntosh, also talked about the EU. One of the things that I have noted is that the EU has quite a different term. I am not aware that the European Union is using the term "precision breeding", but it is looking at "new genetic techniques". How does what we are doing in this regulation fit in with what the European Union is doing? We will be talking about trade later on but, clearly, it is going to be very important that it all fits together and works together in the long term. It is going to be very interesting to look at how we develop as we go on.

[Baroness Hayman of Ullock]

A lot of the definitions are quite vague as well. It would be helpful if the Minister could, perhaps, explain some of the definitions in Clause 1. For example, in Clause 1(1), the actual definition of "precision bred organism" is very, very broad. Is it deliberately broad? Is it trying to capture something in particular? My noble friend Lord Winston talked about traditional processes and natural transformation, as well as referring to "stable". Understanding what these actually mean and their implications for the Bill going forward are important.

Amendment 86, from the noble Baroness, Lady Bennett of Manor Castle, again refers to the title, coming back to what we have just been talking about. She also has Amendment 11 on exogenous genetic materials. There has been some work done by Defra to shed some light on this. The consultation, for example, that was carried out last year, states that

"this proposal does not apply to organisms which introduce genetic material from other species."

However, that distinction, as we have heard, is not in the Bill. Does it need to be in the Bill?

It is not stated anywhere that precision breeding technologies are technologies that edit a single organism. I refer to Clause 1(7), which refers to

"somatic hybridisation or cell fusion of plant cells of organisms which are capable of exchanging genetic material".

What does that mean? Does that open the door to transgenic exchange, for example? Some of it is quite weak on definitions, and some of the definitions could be stretched to include pretty much anything—so I do think that some kind of clarification would be very helpful.

The chief scientific adviser to Defra, Professor Henderson, giving evidence to the Commons Select Committee, said that the Bill was designed not to allow exogenous material. He also said, however, that this was something of a grey area. Particularly in the light of what the noble Lord, Lord Krebs, said—and he has a far greater understanding of this than I do—it is very important to get clarification on this area before we move further on into the detail of the debate.

The Minister of State, Department for Environment, Food and Rural Affairs (Lord Benyon) (Con): My Lords, I am very grateful for this interesting debate on this first section. I will start with, I hope, a note of humility: I understand that I am in the presence of people who have proved, in the introductions by the noble Lords, Lord Winston and Lord Krebs, and others, that I sit at the foothills of knowledge compared with them. The noble Baroness, Lady Bennett, quoted Descartes—I think he said, "All I know is that I know nothing". I hope I know a bit more than that, although my learning curve has been very steep. I am grateful to officials at Defra and others who have helped me through this process.

I am aware that the term "precision breeding" has been controversial in some quarters, although well received in others. I thank noble Lords for this opportunity to explain why we have adopted it. The noble Lord, Lord Winston, suggested "directed bred" as an alternative term to "precision bred", whereas, on this point, the noble Baroness, Lady Bennett, suggested "genome editing" to replace "precision breeding". Concerns have been raised about using the term "precision bred" to describe these organisms, because they can result in off-target changes to the organism's DNA. Although off-target changes can occur using precision breeding technologies, the advice we have received from our Advisory Committee on Releases to the Environment—ACRE—in relation to precision-bred plants is that off-target changes are significantly rarer than those produced during the course of conventional methods of plant breeding. This is also the view of the European Food Safety Authority, which advises the EU Commission.

On animals, ACRE concluded in its advice published in September last year that there is good evidence to suggest that the use of techniques such as CRISPR-Cas9 in animals does not result in a greater number of off-target changes than the background rate for natural mutations—the noble Lord, Lord Krebs, referred to this. Indeed, many recent gene-editing studies on animals have reported no incidences of off-target changes when using CRISPR-Cas9. Therefore, although off-target changes may occur using these technologies, the scientific advice is that they are more precise than traditional breeding, both in terms of making targeted changes to the DNA of a plant or animal and in terms of the number of off-target changes they cause.

In her amendment, the noble Baroness, Lady Bennett, used the term "genome editing" instead of "precision breeding". The class of plants and animals we intend the term to cover will include some gene-edited organisms. However, it will not cover all gene-edited organisms; it will not include plants and animals that contain genetic features produced by modern biotechnology that could not have occurred naturally or by traditional processes. For example, plants or animals developed using gene-editing techniques to contain engineered gene drives would not be included in this new class of organism; they will still be regulated as GMOs. In addition, there are techniques of modern biotechnology other than gene editing that could produce plants and animals in this new class—for example, cisgenesis. It is important to note that the EU is also considering cisgenic, as well as gene-edited, plants in its plans for regulatory reform.

We considered using the term "gene edited" in the Bill but, for the reasons I have explained, we concluded that this would be more misleading and confusing. The purpose of the Bill is to more closely align the regulation of this class of animals and plants with those produced by traditional breeding, recognising that the genetic changes they contain will have arisen in a more targeted and precise manner.

The noble Lord, Lord Winston, makes a very good point about the very important need to engage the public more on this case. The Government have tried very hard to do this, and the Food Standards Agency and wider organisations are doing some very good work. There is a big social science job to do to get the message out about what we are talking about—and, perhaps as importantly, what we are not—and the wider benefits, which we will come to in this and other clauses, about how we can improve the life of us here on this planet, protect animal health and make us

more resistant to such factors as climate change. These are factors that we need to hold in our minds as we rightly debate this important Bill, line by line.

Amendment 10 would, in effect, remove the requirement that every feature of an organism's genome must have been capable of resulting from traditional processes or natural transformation in order for the organism to qualify as precision bred. I understand that the noble Lord's intention in tabling this amendment was to explore the meanings of the concepts of "traditional processes" and "natural transformation" that are used in this Bill. I hope to address his concerns around the terminology that we have used in this Bill and why it is appropriate. I will begin by defining what we mean by "traditional processes" and "natural transformation".

For the purposes of this Bill, traditional processes refer to a number of methods listed in Clause 1(7). The noble Baroness, Lady Hayman, also referred to these. They are well known conventional breeding methods, some of which have been utilised for over 10,000 years, and therefore have a long history of safe use. The methods outlined in Clause 1(7) were not chosen to represent an exhaustive list of traditional breeding processes. Instead, they were chosen because they represent the full range of genetic changes known to occur naturally between sexually compatible plants and animals.

Scientific advice is that genetic changes that could have been achieved through traditional processes, as outlined, do not pose a greater risk as a result of being introduced by modern biotechnology. This is why we have included

"could have resulted from traditional processes"

as a criterion for obtaining "precision bred" status.

"Natural transformation" refers to the process by which DNA from a sexually incompatible organism may be inserted into an organism. In plants and animals, this is almost always the result of infection with a bacterium or virus. Often, the fragments of genetic material left behind after infection no longer serve a purpose or function. The material is non-functional and does not affect the physical characteristics, also referred to as the phenotype, of the plant or animal.

The effect of Clause 1(2)(c)(ii) and Clause 1(6) taken together is to ensure that, for the purposes of this Bill, DNA from a sexually incompatible species which is similar to that which occurs through natural transformation is allowed in a precision-bred organism. This is so long as it does not affect the physical characteristics of the precision-bred organism. This is supported by scientific advice that genetic features produced through modern biotechnology but which could have arisen in nature do not pose a risk as a result of the method of production.

DNA from a sexually incompatible species is critical in the intermediate stages of development of many precision-bred plants and animals. They enable the subsequent precise genetic changes to be made to these organisms. For example, CRISPR-Cas9 often involves insertion of the Cas9 editing machinery to enable the intended precise genetic edits. The Cas9 gene would need to be removed for the resulting plant or animal to be classed as precision bred. Clause 1(6) comes into play where, in some cases, small non-functional fragments of DNA from the Cas9 gene may be left behind. This would be allowed, provided the genetic changes created could have been introduced through natural transformation.

Taken together, the terms "traditional processes" and "natural transformation" ensure that precision-bred organisms are able to contain, in principle, changes that could develop in nature. It is this characteristic that makes precision-bred organisms and GMOs fundamentally different, and we believe that regulating them as such is a proportionate response to the growing body of scientific evidence supporting the safe use of precision-bred organisms.

4.45 pm

The probing Amendment 13 would remove the definition of "stable" in relation to genetic features introduced using modern biotechnology. This Bill stipulates criteria that a plant or animal must adhere to in order to be considered precision-bred. As noble Lords will no doubt know from previous debates, these criteria are that they must have a genetic feature made using modern biotechnology, that every feature of the organism's genome could have arisen naturally or through traditional processes and that any feature made using modern biotechnology must be stable.

There are several reasons why we have stipulated a stable genetic change and subsequently defined what this means. Concerns have been raised that the use of genetic technology would inherently destabilise the genome at the site of the genetic change. While scientific evidence and advice generally does not bear out this assertion, the inclusion of a clause stipulating that the genetic change must be stable and a definition of what this means provides reassurance that such effects will not be tolerated. It also provides additional clarity to users on what kinds of genetic changes are acceptable in a precision-bred organism.

In direct answer to the probing amendment of the noble Lord, Lord Winston, stable genetic features are set out in the subsection that this amendment would remove; the genetic feature that is being introduced must be capable of remaining in the genome over the course of multiple generations, whether by sexual or asexual reproduction. This is not to say that the genetic feature itself must be immune to further mutations in the course of further traditional breeding, which would be impossible both to achieve and to enforce.

Put another way, the genetic feature being introduced must not be done so as to be deliberately or unintentionally transient. As the noble Lord knows, there are a number of ways this could occur, including through looping out any inserted DNA. I hope that this clears up any confusion in this regard.

I note the noble Lord's intent with Amendment 14. I am happy to go into detail, or to talk to and reassure the noble Lord prior to Report, because I think we can agree on this.

On my noble friend's point about cloning—a number of noble Lords mentioned Dolly the sheep—it needs saying here and now that cloning is not within the terms of the Bill. It is a different activity altogether, which is outside the remit of this legislation.

[Lord Benyon]

I also thank the noble Baroness, Lady Bennett, for her Amendment 11, which as proposed would exclude any plant or animal from the definition of a precision-bred organism if the insertion of exogenous genetic material was used during any step of its development, whether or not that exogenous genetic material is subsequently removed.

It is important that we regulate based on the best available scientific advice. The advice is clear: if an organism contains genetic changes that could have occurred naturally or by traditional breeding methods, it does not present a greater risk than its traditionally bred counterparts, irrespective of the techniques used to develop it.

It follows that regulations should be based on the nature of the genetic changes present in organisms intended to be released or marketed, rather than on the techniques used to develop them. While exogenous DNA might have been used in the process of developing the precision-bred plant or animal, functional fragments of this DNA must have been removed before the organism can be classed as precision bred.

As I have explained, the use of exogenous DNA represents important intermediate stages in the development of precision-bred plants and animals. It is true that some non-functional fragments of exogenous DNA may be left behind in the production of a precision-bred plant or animal. However, this is similar to the genetic changes that can occur naturally and be introduced through a process called natural transformation.

Subsections (2)(c)(ii) and (6) in Clause 1 allow a precision-bred organism to contain exogenous DNA, so long as this DNA is similar to that which could have resulted from natural transformation and is non-functional. The intention is that this would allow exogenous DNA to be present in a precision-bred organism only if it would not affect the organism's physical characteristics.

Examples of natural transformation include the natural presence of fragments of exogenous DNA in the genome of most cultivated sweet potatoes, which have been eaten for decades without any adverse effects on human, environmental or animal health. Therefore, many plants and animals under development would not be capable of being classed as precision bred if this amendment stood.

Innovation through technology such as precision breeding can help to create new markets, support sustainable economies and help British business to compete globally. If we were to accept this amendment, countries elsewhere in the world with proportionate regulations would be able to benefit from the huge potential of this technology as it develops, whereas we would remain impeded by our current legislation.

I hope that my words have provided some reassurance for noble Lords and that they will not press their amendments.

Baroness Bennett of Manor Castle (GP): The noble Baroness, Lady Hayman, raised the issue of international compatibility of terminology. I am sure the Minister is aware that the International Organization for Standardization, more commonly known as ISO—and many noble Lords are familiar with ISO numbers applied to all sorts of technical and practical procedures—earlier this year produced a genome-editing vocabulary. It provides a list of internationally agreed terms that will

"improve confidence in and clarity of scientific communication, data reporting and data interpretation in the genome editing field."

There is no mention of precision breeding in that internationally agreed ISO dictionary of terminology. Picking up the point from the noble Baroness, Lady Hayman: would it not be better if we used internationally acknowledged terminology?

Lord Benyon (Con): The amount of time we spent in the department working with real experts in this field to get the terminology right means that I hope we can persuade other countries to adopt our definitions. I know that I am not going to find total agreement on this legislation with the noble Baroness, but I can try. As I explained at some length—and I apologise to noble Lords, but I think this is a really important part of this Bill—we have arrived at this definition in a coherent way. Of course, we are constantly looking at how other countries are doing this. We do not want to be left behind, but we want to keep this safe; we want to see what is happening in the EU, but we want to make sure we are giving our scientists and our businesses the right guidelines around which to develop a really exciting new area of technology.

Lord Winston (Lab): I am very grateful to the Minister for his consideration of what I think are difficult areas in this Bill, which I think remain—we have not solved the problem yet. One of the things I really loathe in Committee is people who move an amendment then take a very long time making a long speech, which bores everybody because they have already heard it, but I feel I have to address a few points specifically. I will not do it again later in this Bill. I think I have views on every single amendment, but I will be careful not to mention them.

The noble Baroness, Lady McIntosh of Pickering, mentioned Dolly the sheep. I think Dolly the sheep is a particularly interesting issue, because one thing which will not have escaped your Lordships' attention is that Dolly the sheep had exactly the same DNA as wherever else she was cloned. Yet animals with the same DNA do not always express the same genes. For example, identical twins in humans are often quite different in many subtle ways, including their fingertips, brain functions, thought processes and so on.

We have to accept that there are many characteristics which are not necessarily demanded, essentially, by the DNA itself but by other things as well. In particular, one of the things we have not yet discussed is the problem of epigenetics; it does come into the Bill. We know that genes can express in different ways under different environmental conditions. That expression can be altered from the very beginning of conception—that is what we are talking about here—which could be, for example, in vitro fertilisation. Of course, that is mentioned in the Bill.

One of the concerns I have about IVF, having been involved with it since its very beginning, is that we still have no long-term follow up on what it means in terms

of epigenetics—that is, how genes will express in the future. There are many examples where the progeny of a species—for example, a mouse—may show complete changes with regard to obesity, for instance, due to an insult four generations earlier. One has to accept that these changes occur very early; the mothers are fed with fats at the very earliest stages of pregnancy, and four generations later, we see a sex-determined link with obesity in the progeny. These sorts of issues are not teased out here.

Clearly, a great deal of doubt is encompassed in the Bill and in the science of it. As the noble Lord rightly said, we must all have a degree of humility in trying to work out what is best. He and I, and I think most people in this Chamber, would agree that we are mostly concerned about one thing: the environment. We are concerned about climate change and how we might adversely affect our environment. As we will come to later with the release of organisms, one thing that is very clear is that sometimes in the past—with natural causes—organisms have been released into the environment. We can think of the hornet in Britain, the Bufo toad in Australia, or the fungus which causes elm disease in England. Those things have all been produced by simply being involved in our environment, with colossal difficulties. Of course, we do not ultimately know whether this is a problem with modified organisms.

There is one thing which is not discussed here but which we need to consider. What we have forgotten, partly, is evolution. We are trying to evolve a species in one step, and that is a difficulty. If you take the human species, since Homo sapiens was first in east Africa 100,000 years ago, there have probably been about 5,000 families of humans—that is all. We have not evolved very much; the human brain remains very much the same. It takes a very long time for it to change even small amounts. What we are doing here is expecting rapid change for the benefit of ourselves and, we hope, of the planet too, but the problem is that we are dealing with an environment that is constantly balanced and balancing. We are at risk of damaging that balance with so many things that we do, and I regret to say that this is one of the reasons we have to be very careful when we come at the end of the discussion to the problem of balance and, therefore, how we release these organisms into the environment and control that. That is why the Bill is so important.

Without any further ado—I have already spoken for too long—I simply ask permission to withdraw my amendment.

Amendment 1 withdrawn.

Amendment 2

Moved by ***Baroness Jones of Whitchurch***

2: Clause 1, page 1, line 4, after "plant" insert ", where that plant's purpose relates to agriculture,"

Member's explanatory statement

This amendment is designed to probe how widely the Government expects gene editing technologies to be applied to plants, and whether the absence of any limitations may lead to unforeseen consequences for wild plants.

Baroness Jones of Whitchurch (Lab): My Lords, I rise to move Amendment 2 and speak to Amendment 31 in my name. At the outset, I declare an interest through my involvement in Rothamsted agricultural institute, as in the register.

This group follows on quite neatly from our earlier debate, and I am grateful to my noble friend Lord Winston and others for setting out some of the risks inherent in this technology. It is the balance of those risks that we are struggling with as we go through the Bill, because, as I think the noble Lord, Lord Krebs, said, nothing is risk free. We can all see the potential advantages of this technology, but we have to get the balance right.

Amendment 2 is a probing amendment which tests out whether the Government intend gene-editing techniques in plants to be used more widely than simply for agricultural purposes. For example, is it also envisaged that this could be used for ornamental horticulture—to speed up the shapes or the colours of flowers? Is this desirable? Is it really what we want the technology to be available for? Would that wider use of the technology make more work for the regulators? I am sure that it would. As the demand for authorisation soared, would we have the capacity to manage it properly? Do we really want the regulators to be bogged down in authorising the new shade of a rose? This is simply one example. Noble Lords could think of many others which would go beyond the very specific application of the technology to agricultural purposes.

5 pm

This amendment challenges how far we want this technology to be applied. Of course we understand the pressure to deliver for improved food and farming. Do we really want to go beyond the sectors which are absolutely necessary? In earlier debates, the Minister talked about taking progress step by step. Is this an area in which we want to proceed? How far beyond agriculture are the Government envisaging that this technology will be applied?

Amendment 31 addresses the potential of the wider environmental impact of individual precision-based interventions. Our amendment would require the advisory committee to report and to make a particular assessment of the organisms' wider impact on agriculture. This is because of the potential disruption to the ecosystems which we now know underpin good farming practice. I am grateful to my noble friend Lord Winston. In his last contribution, he gave some examples of where this technology could go wrong and have an adverse impact on agriculture not envisaged at the time the organisms were released. For example, a crop variant could be created which would be resistant to certain pests. That would be an advantage, but it could have an adverse impact on other insect life which had previously been contributing to the biodiversity of the soil life. Pests which had previously been attracted to certain species of plants might no longer be attracted to them. They could be deflected on to other plants which had not previously been damaged by these pests. This could cause an adverse chain reaction within agriculture.

The amendment also raises the potential for a crossover between plants and animals, so that the technology affecting plants could also have an effect

[Baroness Jones of Whitchurch]
on animal life. New variations in animal feed may strengthen an animal's resistance to infection, but its altered manure could also alter the balance of insect and microorganisms in the soil. All these technologies are interrelated. Each cannot be taken as a precise, individual intervention. It matters, because we know that the restoration of our biodiversity is so important. It also matters, particularly in farming, because of the scale to which the technology could be quickly applied and where the danger of unforeseen consequences could cause widespread detriment.

This once again highlights the failings in the regulatory system set out in the Bill. There does not seem to be a mechanism for the advisory committee and the welfare advisory committee to collaborate in looking at the wider impacts of these changes. This is why I have argued from the start that we need a more robust regulator—such as that proposed by the genetic technology committee—who could take a holistic view of the wider impact of these changes. We will come to this later.

I agree with the points made earlier by my noble friend Lord Winston when he said that, regrettably, the Bill is about releasing genes but not about studying them first. I challenge where this studying would take place. In the meantime, we know that regenerative farming practices will lie at the heart of a successful food and farming policy for the future. These amendments would ensure that precision-bred organisms were placed firmly in this wider context if the advisory committee were given this wider role. I hope that noble Lords and the Minister will see the sense in these proposals. I beg to move.

Lord Krebs (CB): My Lords, I have added my name to Amendment 31 in the name of the noble Baroness, Lady Jones of Whitchurch; I thank her for introducing both this amendment and the other one in this group so eloquently. Amendment 31 makes a modest and perfectly reasonable request. As I said at Second Reading and intend to go on in boring detail about, precision breeding has the potential to be an important tool in the toolbox for creating a doubly green revolution, producing more food with less impact on the environment. If we accept that proposition, we should be in favour of taking into account the wider effects of gene editing.

I do not need to repeat what the noble Baroness said so clearly, but we know without doubt that many of the changes in agriculture that arose during the green revolution were bad for their environments. Loss of habitats, overextraction of water, water and air pollution, greenhouse gas emissions, loss of soil health, loss of biodiversity—those are just a few of the adverse effects of the agricultural revolution that we have enjoyed over the past 60 years or so. Amendment 31 makes the modest request that the advisory committee should take into account these kinds of effects so that, when we create precision-bred organisms, we do not inadvertently make things worse for the environment rather than better. I look forward to the Minister's response.

Lord Cameron of Dillington (CB): My Lords, I support Amendment 31. First, for the purposes of this Committee, I declare my interests: I am still involved in a family farming enterprise, growing crops and rearing livestock; I chair the board of the UK Centre for Ecology & Hydrology; and I am the president of the Royal Association of British Dairy Farmers.

Amendment 31 is similar to the two amendments that I put down in a later group on animal welfare, stressing the importance of following new strains of wheat, grass and maize—in my case, cows, pigs, sheep and dogs—down through many generations on to the farm, even into the home. As has already been said, the point is that we need to watch for the good effects, hopefully, but we must also look out for the possible unintended consequences that might arise. To be honest, I would hope that this already happens because, obviously, unintended consequences were even more likely to happen in the past under the random mutations of traditional breeding; if not, such measures should certainly be introduced now. It would be good to be reassured of that by the Minister.

Baroness Bakewell of Hardington Mandeville (LD): My Lords, the noble Baroness, Lady Jones of Whitchurch, gave a very good introduction to these two amendments. Several of the speakers at Second Reading referred to the benefits of gene editing to enable crops to be hardier with regard to resisting drought and flood and the ability to repel insects. It is obvious to all that climate change is having a dramatic effect on crops; in many cases, it is devastating. Unlike the noble Lords, Lord Winston and Lord Krebs, my technical knowledge on gene editing is woefully inadequate. However, I will do my best.

Not only in England but in other countries as well, farmers are finding their crops destroyed by the forces of nature, which they are powerless to combat. In many cases, this has led to a shortage of crops to feed indigenous populations, resulting in food loss and, in some instances, the starvation of large numbers of populations. Attempting to ensure that crops are more resilient is important. However, at the same time, it is essential that the natural cycle of our wild plants is protected. Both the Agriculture Act and the Environment Act focused on the loss of biodiversity in our natural habitats in fields and hedgerows. The environmental land management schemes are intended to help biodiversity recover so that natural species of plants, birds and small animals recover to a sustainable level. However, if the gene editing of crops and plants affects ecosystems to such an extent that it alters their natural cycle, this will undoubtedly have an effect on wild flowers, which in turn will affect birds and small mammals.

This comes down to the precautionary principle and ensuring that action taken as a result of this Bill is closely monitored and does more good than harm. When moving forward with technology, which although tested is likely to move more quickly than traditional methods in the past, the prevention principle should also form a part of the equation.

The noble Baroness, Lady Hayman, spoke eloquently at Second Reading of the last time gene editing was debated and how the debate got bogged down to such an extent that it had to be abandoned. It is not our intention on these Benches to see this happen a second time. It is time to move on, but we are looking for safeguards for the future. Without the necessary

safeguards, unintended consequences could be hard to reverse. The noble Baroness, Lady Jones, and the noble Lord, Lord Krebs, made very powerful points in their arguments, with which I agree. I hope the Minister will be able to give the reassurances which are sought around the workings of the advisory committee.

Baroness Wilcox of Newport (Lab): My Lords, I apologise to the Committee for not speaking at the Second Reading of this Bill; I was not on the team at that point.

I am grateful to my noble friend Lady Jones of Whitchurch for tabling the two amendments in this group, which we understand to be probing amendments. As my noble friend said about Amendment 2, she is challenging how far technology is applied. Do we want to go beyond certain sectors? How far beyond agriculture do we want to go? Amendment 31 is about the wider environmental concerns and reporting on the potential disruption to the farming ecosystem, which could have adverse effects on other plants.

As several speakers noted at Second Reading, the use of gene-editing technologies in plants is far less contentious than in animals. There is not only a much larger body of evidence from research institutions, following years of trials, but that evidence points to the risks being substantially lower. However, even if the risks are lower and potentially easier to mitigate, we must remain mindful of them. Regardless of whether these technologies are used for plant or animal life, we are dealing with processes that accelerate natural events and which may have—we have already heard this phrase—unintended consequences. Indeed, I have heard that phrase in your Lordships' House over and again during the process of many Bills this Session. It seems to point to an uneasiness with what is being proposed and a lack of thinking things through during the process of legislation.

One imagines that the bulk of releases and marketing authorisations under this legislation will relate to agricultural products. If we can produce certain crops in a more efficient manner, or make them less susceptible to increasingly frequent extreme weather events, that could be a good thing. But we must remember that agricultural crops live alongside wild plants—grasses, wildflowers, trees and hedgerows—all of which have their own important roles in the natural world and in the careful and precious ecosystem. These amendments allow us to consider how new gene-edited varieties of crops will live alongside and interact with other types of plant life

It may be that there is a place for these technologies beyond agriculture, such as making certain tree species less susceptible to disease. I remember well, as leader of Newport City Council, when we had to deal with the significant problem of ash dieback. Large areas of ash trees were felled, with a significant impact on local wooded areas. We had a policy of planting two trees for every tree cut down on land we were responsible for, so felled ash trees were replaced with other suitable trees. If technology could help prevent such drastic measures, that can only be a positive thing.

Regardless of the precise applications of the technologies, it is not clear that the Bill as drafted takes full account of the potential consequences of new plant varieties once they are released. The Government's environmental land management schemes and other initiatives are trying to halt the steady decline in our biodiversity which has been caused in part by the loss of meadows and hedges and the habitats they sustain. These efforts are hugely important, and there is a role for gene-edited plant varieties as we seek to achieve that goal. However, concerns have been raised by experts in this Committee that seemingly minor changes to agricultural, forestry and other land management practices arising from the use of new plant varieties could inadvertently have significant impacts on soil quality and wildlife in the medium to long term. These amendments provide the Government with an opportunity to address these concerns and outline how they will ensure that this new regime fits into efforts to protect and enhance our natural environment. I urge the adoption of them by the Government.

5.15 pm

Lord Benyon (Con): My Lords, I am grateful to the noble Baroness, Lady Jones of Whitchurch, for reminding me that I have not referred noble Lords to my entry in the register or stated that I have farming interests. I thank her for being on the board of Rothamsted, one of the great institutions of this country. Many of the scientists there have been enormously helpful to us in the development of this legislation, and I am grateful to them for that.

I thank the noble Baroness for Amendment 2. The focus of our discussion has been on crop plants, but there is potential for precision breeding to be used in the breeding of other plant species, such as in forestry and ornamentals. I entirely agree with that. There would have to be a market for them, and I do not think they would be a priority for plant breeders in ornamentals, but there are huge possibilities for this in areas such as forestry.

The noble Baroness, Lady Wilcox, who I welcome to her post in the team, mentioned ash dieback. She is entirely right that it is a scourge on our environment and anything that can help to protect our forestry, ecosystems and woodland environments is important, which is why there may be a future for precision breeding in some of these areas.

Precision breeding could be particularly beneficial to speed up the breeding process in species that take a long time to mature—for example, to introduce disease resistance and drought tolerance traits in trees. This could have benefits for the forestry sector and for trees that are particularly susceptible to disease. As such, the definition of plants in the Bill is necessarily broad to allow for precision breeding and for the benefits to be realised in a range of species.

Our scientific advisory committee, ACRE, advised that precision-bred plants pose no greater risk to the environment than traditionally bred counterparts. It also advised that crosses between precision-bred crop plants and any sexually compatible wild relatives are extremely unlikely to result in weedier wild populations. Precision-bred plants are unlikely to be more invasive or persistent in non-agricultural settings compared to traditionally bred equivalents. This is because precision breeding relies on the creation of the same type of genetic variation as is selected for in traditional breeding.

[Lord Benyon]

The Bill introduces two notification systems. They require developers to provide information about precision-bred plants before they are released into the environment. Our intention is that this information would be published on a public register before the plants are released. I assure the noble Baroness that this will be closely monitored by the Government and, we anticipate, by stakeholders.

This Government have a strong commitment to protect and improve the environment, and we are clear that environmental protections are not being reduced in this Bill. Existing regulations such as the Wildlife and Countryside Act 1981 and the Natural Environment and Rural Communities Act 2006 will continued to apply to protect the environment from the introduction of non-native and invasive species.

I hope that reassures the noble Baroness that precision-bred plants pose no greater risk to the environment than traditionally bred plants, and that the Bill provides for proportionate systems to monitor developments in how these technologies are applied. I hope that she will feel able to withdraw her amendment.

The noble Lord, Lord Cameron, raised some interesting points. If he will forgive me, I will keep my powder dry until we get to the group beginning with Amendment 19, later in today's proceedings, because that is where I can best address his concerns.

I turn to Amendment 31, which probes how the use of a precision-bred organism may impact on agricultural processes and systems. As I have previously outlined, we see precision breeding as an essential part of our toolkit to improve our food system. We are already seeing promising research in which precision breeding could positively impact agricultural processes, such as by reducing the need for pesticides and fertilisers and reducing water use.

In countries such as Argentina, where the use of precision breeding has already been regulated in a more proportionate and cost-effective manner, there has been an increase in the variety of beneficial traits being researched. We hope to see a similar outcome in England. This would enable our farming system to benefit from new varieties and breeds that have improved climate and disease resilience and pest tolerance, among other things. We do not expect one trait, product or company to dominate the market and shape agricultural processes in England.

Existing regulations related to plant variety registration, seed certification and seed marketing already deliver an assurance of quality and stability for most agricultural crops. For some agricultural crops, this also includes additional testing for value for cultivation or use. If such crops were to be developed by precision breeding, they would also fall under these regulations.

Precision breeding has the potential to bring positive impacts for farmers and the environment, and we want to encourage that. To encourage this innovation and investment, we need to create a more proportionate and science-based regulatory regime. That is what we are trying to achieve in the Bill. I hope that provides the reassurance that noble Lords require.

Lord Winston (Lab): Does the Minister see this extending to non-food crops?

Lord Benyon (Con): As I said, I can see this finding a use in forestry and in some ornamental crops. I think the early work will be done in areas that I outlined, including drought resistance and reducing the requirement for input such as fertilisers and sprays, but we want to include the ornamental sector in time. There are 30 million gardeners in this country, and we want to unlock their potential to be part of a great green revolution, but I do not think that that will be the priority here. The priority will be food.

Lord Winston (Lab): Then why not restrict the Bill to agriculture and horticulture? There are, of course, mechanical engineering reasons for wanting some plants or indeed animals for non-food purposes.

Lord Benyon (Con): With respect, I would not want to do that. In the same way that we are insisting that these measures can be achieved over a longer period of time through traditional plant-breeding techniques, if they are safe, it can be applied for food crops and in protection of our trees and woodlands, and it may have applications in other areas which will help our economy, particularly our green economy. I would not want to restrict it from those sectors.

Baroness Jones of Whitchurch (Lab): My Lords, I thank the Minister for that response. I accept, as several noble Lords have said, that there is a role for gene-editing techniques in breeding disease-resistant trees. My noble friend Lady Wilcox gave the good example of ash dieback and we can think of other examples of such applications.

The Minister seems to be going gung-ho for all markets, if I could put it like that. I caution against that. As I said earlier, we need to do this step by step. We all understand the pressure to feed the nation more productively, but I am not sure that it is a priority to go beyond that to things that are more decorative, for example, even if there is a market at this time. I would have liked the Government to have had a more balanced view to this, but I will study what the Minister said more carefully in *Hansard*.

Moving on to Amendment 31, I do not think the Minister actually answered the fundamental question, which is whether the advisory committee will be asked to look at the wider implications for agriculture of these particular techniques. Will it be looking purely at whether the individual genome is safe or at how it might impact on the wider landscape, if it is planted in the wider landscape? All we were asking is whether the advisory committee will be given that role. The noble Lord mentioned other pieces of legislation, but we should not have to rely on them to make sure that the environment is protected. It would be nice to see that written into the Bill.

Lord Benyon (Con): I will just answer that precise point. That is very much what ACRE does. It would not just be restricted to looking at a narrow area of science but the wider implications of the release into the environment and any impacts that that could have.

Baroness Jones of Whitchurch (Lab): I am grateful to the noble Lord and therefore wish to withdraw my amendment.

Amendment 2 withdrawn.

Amendment 3

Moved by ***Baroness Bennett of Manor Castle***

3: Clause 1, page 1, line 4, leave out "or a precision bred animal"

Member's explanatory statement

This amendment removes animals from the scope of the Bill.

Baroness Bennett of Manor Castle (GP): My Lords, in moving Amendment 3, I shall also speak to the rather daunting-looking number of amendments in this group. The noble Lord, Lord Winston, referred in the first group to debate on the Bill in the other place being deficient. It is interesting that, last week, the Institute for Government released a study stressing how much better and stronger scrutiny of Bills needs to be in the other place. The debate we are about to have will perhaps set an example of what the other place could and should have been doing with the Bill, before it came to us.

We already introduced this in the last group with Amendment 2 from the noble Baroness, Lady Jones of Whitchurch, but here we are looking broadly at the wide range of ways in which this Bill might be applied to different groups of plants and animals—or not, as the case may be.

The noble Baroness, Lady Jones of Whitchurch, in responding to the Minister's comments on the earlier group, said that it appeared that the Government were "going gung-ho for all markets".

That is a fair summary of what we are presented with on this issue, which is interesting, because the debates and the presentations we have heard from Defra have all been talking about food, farming, food security and dealing with the climate emergency. In those Defra press releases, we do not see discussions of prettier roses or more colourful plant foliage, yet it appears that that is being proposed. The detail of this Bill, except for in talking about marketing of food and feed, does not really talk about food and farming at all. We will come later to a group focusing on the question of inserting a clause about public good, which is one way that the actual claimed benefits of the Bill could be inserted, at least indirectly.

The single beneficiary of the Bill is—sometimes this sneaks out—the biotech industry. It is written to support the Government's industrial innovation ambitions, not to support food, farming or the food security of our population. This is among the many faults that were picked up by the Regulatory Policy Committee; the Bill fails to understand where what it is proposing intersects with farming, food production, food businesses and consumer interests. These concerns are also echoed, in somewhat less clear language, by the Delegated Powers and Regulatory Reform Committee and the Constitution Committee.

5.30 pm

It needs to be said at some point—and this is probably the point to do it—that we have a great plant breeding sector in the UK and the majority of its work is not focused on genetic engineering as it is a relatively small, specialist area. An interesting example is Wakelyns agroforestry, which is doing pioneering and innovative work on developing races of wheat and other grains. Diversity is built within the race of a crop, such that you keep using those seeds again and again with variety built in. That is an agro-ecological approach to farming that, as the Government will sometimes acknowledge, is what we actually need.

Despite the number of amendments in this group, they form a clear set of choices that are laid out before your Lordships' House. I begin with Amendment 3, in my name, which would exclude animals from the provisions of the Bill and simply restrict it to plants and—I am going to assume—fungi. In the interests of not getting too diverted at this point, I am not going to revive a detailed debate I had at great length during the passage of the Agriculture Act, but fungi are not plants. This is something that perhaps the department might like to look at before we get to Report, or I might feel unable to avoid writing in something that would make the Bill scientifically accurate. There is also a great deal of discussion now about producing food in vats, which brings up the issue of bacteria and protists. This suggests that the Bill might not be as future-proofed as the Government like to claim.

My Amendment 3 would exclude animals and restrict the Bill to plants and possibly fungi. I shall begin with a briefing from 13 animal protection organisations, including the RSPCA, the Conservative Animal Welfare Foundation, the Humane League, Animal Aid, Animal Defenders International and OneKind. They say that the Bill, by including animals, is

"a backwards step for animal welfare … increasing the risk that animals will be regarded as 'things' that can be modified for human convenience. This is contrary to the recognition of animals as sentient beings in the new Animal Welfare (Sentience) Act 2022."

That is a kind of philosophical approach, although it is interesting that in the earlier group, the noble Baroness, Lady McIntosh of Pickering, raised similar concerns from the briefing from the British Veterinary Association, which I have not seen.

To move away from the moral arguments, I think that we need to look at the practical ones, which, again, were raised by the noble Baroness, Lady Jones, in the last group. The Nuffield Council 2016 ethical review of genome editing pointed out that if we change the genome of an animal to reduce the likelihood of it being infected with one disease, we may then think that we are able to crowd the animals much closer together in much worse conditions. But, of course, that is opening the way both for bad treatment of animals and to other diseases. We only need to look at what has happened with avian flu, which is very clearly before us at the moment. It is believed to have started in intensive agriculture, has now spread into our wild populations and continues to decimate our heavily crowded, factory farmed poultry.

One of the other claims about animals, which we hear in the Government's press releases et cetera, is that we will get higher levels of productivity from them, but it is worth looking at what higher levels of productivity have already done—there are so many accounts of this. Broiler chickens grow so quickly that their legs cannot bear them, and their hearts simply

[Baroness Bennett of Manor Castle]
give out, not being big enough to support their flesh. Hens have been bred to lay over 300 eggs a year, which means that they draw on their own bone calcium to produce the eggshells. To produce milk for her calf, a cow would normally produce 1,000 litres of milk in 10 months' lactation, but dairy cows are now bred—this is through conventional breeding—to produce 10 times as much as would be natural. Unsurprisingly, that contributes to issues such as lameness, mastitis and reproductive disorders. We have done all those things with conventional breeding. Is applying to animals techniques that will increase their productivity really the direction in which we should be heading? I posit that it is clearly not, and many of the expert commentators have drawn attention to that.

We will come back to this, but, in their briefing, the 13 leading animal charities point out that the Bill's protections for animal welfare are too weak and are very broadly drawn, and it is unclear how they would operate in practice. I make no secret of the fact that my starting position is that I am utterly not in favour of the Bill, but I put it to those who wish to promote it and see it go through, addressing the issues raised by the noble Lord, Lord Winston, that the public reaction to the Bill would be far more favourable if it covered only plants.

I will offer an alternative option and pick up some points from the noble Baroness, Lady Jones of Whitchurch. Amendment 7, which I put down as an alternative option, says that it would be only plants or animals relating to agriculture. On what the Government are talking about, I point out that the George Eustice press release that I referred to earlier said that

"we can breed crops that are more nutritious, resistant to pests and disease, more productive and more beneficial to the environment, helping farmers and reducing impacts on the environment."

That relates to agriculture, not those terribly decorative roses or that lovely foliage for hedges. The Defra chief scientific adviser, quoted in the same press release, said that the purpose of the Bill is "to build better crops". That is how all this is being sold.

I neglected to thank the noble Baronesses, Lady Hayman, Lady Jones of Whitchurch and Lady Bakewell of Hardington Mandeville, for supporting my Amendment 3. I also offer copious thanks to the noble Baronesses, Lady Hayman and Lady Bakewell, who put down a huge number of amendments, from Amendment 15 onwards, consequential on my Amendment 3. They deal with the Bill in a level of detail that I simply did not have the capacity to manage, and I sincerely thank the noble Baronesses for that.

I will note the other alternative options. Amendment 4, in the names of the noble Baronesses, Lady Parminter and Lady Hayman, would say only "farmed" animals, as would Amendment 6 in a slightly different form. The very important Amendment 5, in the name of the noble Baroness, Lady Hayman of Ullock, would explicitly exclude companion animals. I was talking about what we have done to productive animals such as dairy cows. Given what traditional breeding has done to some breeds of dog, for example, and the kind of life that it has given them, I have very little doubt that the British public would think that the gene editing of companion animals should be absolutely excluded from the Bill.

Lord Trees (CB): My Lords, I apologise for my late arrival. I set off from Scotland very early this morning, but, as noble Lords might imagine, flights have been heavily disrupted. I would be grateful to contribute, if that is allowed.

I thank the Minister for his reassurance about gene drive and that that will still be subject to GMO regulations—this was a concern that I and others, including the noble Baroness, Lady Bennett, had at Second Reading.

I turn to this group. I very much welcome the inclusion of animals in the Bill. This is a valuable adoption of modern technology. It can be a game-changer in the way we control and prevent diseases in animals, and will have positive welfare and environmental benefits. In this debate, we really need to weigh up the benefit-cost ratio. There are certainly lots of downsides to conventional breeding, which we have used without demur for many years.

Regarding environmental benefits and controlling disease, we know that, if you can control enteric worms in ruminants—for example, sheep—with drugs, you can decrease greenhouse gas emissions by 10% per unit of productivity. There is every reason to believe that we are going to be able to achieve that and more, without the use of drugs, by targeted genetic selection in breeding.

We know that, in the control of diseases, while vaccines are a wonderful invention, there are still many important infections that we do not have effective vaccines for. Avian flu is a very good recent example. Of course, we use genetic manipulation all the time in developing the vaccines that we then inject into people and animals.

Drugs have their inherent problems. Although they have been a fantastic advantage for us—particularly antibiotics, to prevent animals and people dying of infections that we could not control before the 1940s and 1950s—they have downsides as well. In many cases, we have drug resistance. Release into the environment has environmental consequences, as with other chemicals—parasiticides, for example. Environmental pollution of the aqueous environment is currently a matter of considerable concern.

These genetic technologies obviate those downsides of our current technologies. We have known for many years that susceptibility to disease is determined by a number of factors but that genetics is a major factor. However, we have failed to make substantial use of that knowledge, because it is too slow by conventional breeding and too difficult to determine and achieve the results we seek. I emphasise the point made earlier by my noble friend Lord Krebs: natural or traditional breeding involves huge uncertainty, so one's intended consequences may be extremely difficult to achieve. Conversely, unintended genomic consequences can and do occur, as my noble friend Lord Cameron of Dillington mentioned.

We discussed the wording in the Title of this Bill—"precision". We can all agree that the techniques that we are discussing are certainly more precise than

traditional breeding, in which we have no control whatever over the multiple mutations that occur when we hybridise animals. I therefore strongly support the inclusion of animals in the Bill, but I share a lot of the concerns about animal welfare and health. It is important for public confidence, as well as for the future monitoring of animal health and welfare consequences, that we monitor for adverse events post the achievement of the breeding of such animals, as we do for new drug introductions. That will be discussed later.

Finally, I will address the welfare issues which have been eloquently articulated. I do not want to repeat what I said on Second Reading, but we have laws governing the welfare of farmed animals. If we think there are problems now—as a number of people clearly do—the solution is to properly apply and enforce the laws we have. We do not need to invent new welfare laws because of a particular technique or technology that is coming along. Welfare laws, I would maintain, are already there; but if we feel they are insufficient, we should strengthen them, and that should apply to conventional and natural breeding as well as any modern technology.

5.45 pm

In conclusion, I support the inclusion of animals, and I note the timetable would delay the introduction until a number of the safeguards in the Bill have been addressed for animals.

Lord Winston (Lab): Would the noble Lord be kind enough to answer one question? Does he not consider the possibility that the genetic modification of a herd of animals might make them more likely to be predisposed to a particular disease or infection that we did not expect?

Lord Trees (CB): With respect, I say that that could be screened out in the development process. There may be indications, were such a risk likely from genetic linkages and so on, and that could be looked for by whole genome sequencing in the screening process and then perhaps by in vivo challenge experiments. But it could occur in natural breeding processes, too.

Baroness Bennett of Manor Castle (GP): The noble Lord referred to the possibility of using gene editing to tackle enteric worms. Would he acknowledge that there is some very successful work being done on using diet—particularly tree crops and more varied pastural swards—to tackle worms? That is a far more agroecological approach that is working very effectively and has lots of other environmental benefits as well.

Lord Trees (CB): I acknowledge that work has been done on that, but it is not in widespread commercial use.

Baroness Jones of Whitchurch (Lab): My Lords, I have added my name to Amendment 3, and I support the consequential amendments. The Government's relatively late decision to add animals into the scope of the legislation has made what would have been a more routine Bill into something we believe is far more contentious. As many of us said on Second Reading, this has been compounded by the lack of detail as to how the regulations will work.

The Government have themselves admitted that the understanding of the impact of these new provisions is not fully developed. In fact, I believe the chief scientific adviser gave evidence in the Commons that it would take at least a couple of years to enact the animal-related clauses. So there is no urgency in adding them to the Bill at this time, and it seems that the only reason this is being done is because Defra is not sure when it will next get a legislative slot. That does not seem a very good basis for making legislation, particularly when we have so little information with which to make a judgment. For example, the factors that the welfare advisory board will consider have yet to be spelled out. We do not even know who will be tasked with making those decisions. We will return to these arguments when we consider other amendments about the composition and terms of reference of the regulators.

On Second Reading, several noble Lords sought to highlight the potential benefits of gene editing for animal welfare, and the noble Lord, Lord Trees, has done that again. No doubt there could be benefits—for example, in breeding out male chicks or tackling pig respiratory disease. But for every advantage there is a counterargument for the disadvantages. We have heard some of them from the noble Baroness, Lady Bennett. It could be used to enable more intensive livestock breeding or to create fashionable designer dogs with health defects.

The fact is that scientists have not always used their breeding skills to altruistic effect. Hence, as we have heard, we now have chickens whose breast meat is so heavy that they are unable to stand, and farm animals bred for fast growth and high yields at the expense of their welfare. The Nuffield Council on Bioethics has also raised concerns about animals being created to live packed together in more crowded spaces—another point made by the noble Baroness, Lady Bennett. So it is not surprising that the major animal welfare charities are sounding the alarm.

So far, the debate around gene editing has concentrated on crops and seeds, and it has received cautious public support. But the introduction of animals raises much deeper ethical and moral challenges, which have not been explored in the public sphere. We are therefore in real danger of a backlash when this element of the Bill becomes more public.

The British public deserve to have a proper, thoughtful debate about how we want to coexist with farmed and domestic animals and the extent to which we should manipulate their breeding for our own ends. So I believe that these clauses inserting animals into the Bill are premature. We are being asked to take too much on trust at a time when the Government's own thinking is not clear, and we all know the limitations of the secondary legislation system and the inability of Parliament to make real change at that stage. It is not good enough to expect us to pass this authority back to the Secretary of State when we know so little within the Bill at this time. This is why I believe we need to pause these clauses until Parliament can have a full debate on the fundamental issues at stake. I therefore support Amendment 3.

Lord Krebs (CB): My Lords, I join my noble friend Lord Trees in welcoming the inclusion of animals in this Bill, but I have added my name to Amendment 6, which would restrict the animals in question in the first instance to those involved in agriculture. My main reason for proceeding cautiously relates to the point just raised by the noble Baroness, Lady Jones of Whitchurch, of public acceptance. There is a risk that, if the net is cast too wide with the inclusion of animals, there could be a backlash, which would undermine the whole endeavour.

As the noble Baroness, Lady Bennett of Manor Castle, has said, Amendment 5, which excludes companion animals, is a helpful start. I agree with her that many people would be horrified at the thought that we might breed dogs with further flattened noses through gene editing and that they would suffer the consequences of that.

One can also ask: would the public be happy to see gene-edited wild animals? We discussed that in relation to plants a few minutes ago. One could conjure up examples where the answer might be yes. For instance, if we could gene-edit herring gulls to stop them stealing ice creams and chips at the seaside, that might perhaps be a popular move; but I suspect that, on the whole, people would not be happy to see our native animals gene edited outside the context of agriculture. As it is most likely that the early applications of gene editing in animals will be for agriculture, why not acknowledge this, start here and progress step-wise to widen the range of animals at a later stage if that is deemed advantageous?

The advantage of Amendment 6 over Amendment 8, which refers to farmed animals, is that Amendment 6 would allow for the gene editing of, for instance, a pest or parasite of an agricultural species while Amendment 8 would not. I defer to the noble Lord, Lord Trees, for his expertise on this, but it may in some circumstances be easier to reduce the burden of disease on farm animals by altering the genome of the disease-causing organism rather than the genome of the farmed animal itself.

So, while I am in favour of including animals in the Bill, I think there is a case for proceeding cautiously and, in the first instance, restricting that to agricultural contexts.

Lord Winston (Lab): My Lords, Amendment 9 is in my name. I will be very brief about that, but I agree that we should be extremely cautious generally about animals at this stage. There is a lot of concern. From the example of dealing with pigs in a genome environment, I know that they are very different from some of the other mammals that we have been experimenting with. We may come to that issue later on when it comes to licensing.

With regard to Amendment 9, there is a strong case as well for limiting this to farm animals, if we go ahead at all—and if we do I would like to see equines excluded, for pretty obvious reasons. Some time ago, when I was working with an anaesthetist who was looking at equine metabolism, it was amazing how suspiciously the horse-breeding industry looked at our work—so much so that we could not share our data on their metabolism. It was very clear that we would have great difficulty with the restrictions that are proposed on that industry.

With regard to the great apes, it would be wrong to consider them in the same way as other mammals. It seems to me that these sapient creatures are so close to humans that they ought not to be included in the Bill. There are restrictions, of course, on the use of rhesus monkeys in research. I have worked with rhesus monkeys, not in Britain but in the United States. As a research worker, I always found that extremely distressing because I saw their response to even just a visit from us, when they knew we were going to do something which they thought would be unpleasant. I feel strongly that there has to be a very strong case for modifying sapient creatures, perhaps even to make them less sapient—so I propose Amendment 9 on that basis.

Lord Cameron of Dillington (CB): My Lords, I realise that these are mostly probing amendments and, as ever, we await the Minister's remarks with bated breath. But I cannot let the proposal to exclude all animals pass without comment because, like my noble friend Lord Trees, I believe that if we were to exclude all animals from the Bill, it would be an opportunity wasted to enable us to remove a lot of suffering on their behalf. My noble friend and I both mentioned the disease PRRS in pigs at Second Reading. It is a devastating disease for any herd, outdoors or indoors, organic or whatever. As a farmer, you just have to cull drastically to eliminate as much suffering as possible, and killing your herd is not a very pleasant thing to have to do. Breeding resistance to the disease is therefore a much more humane approach.

One of the great positives of the Bill is that if you alter the genes of one animal, say, to make them resistant to a particular disease, and succeed in making this a hereditary and stable characteristic—not always a given—you can get huge benefits for animals and even humans, because you will be taking more antibiotics out of our environment. Breeding resistance into future generations is so much more sensible than the ongoing use of antibiotics, medicines and even vaccines as a way to help animals live pain-free and disease-free lives.

The key to making the Bill work fairly and humanely for animals is to ensure that we continue to have the strictest monitoring and regulation every step of the way: in the laboratory and on the farm, and for plants and particularly with animals. We will obviously come to the tightening of some of these regulations later in our deliberations.

On the companion animal debate, I fear I disagree with my noble friend Lord Krebs, who I very rarely disagree with. I realise that they seem to present a slightly more unregulated environment than that of farm animals; people keeping pets are not subject to the strict regulations that exist on our farms—regulations that are, in theory, enforced by a variety of inspectors, not least those who come from the supermarkets, on which the farmers depend for their livelihoods. However, we are not debating how the pets are being kept: it is the ability of breeders to get the relevant licence and approval from the Home Office, and now from the welfare advisory body. If we had some form of guarantee

that the welfare advisory body will have a remit—nay, a duty—to investigate in the home and on the farm the future quality of life of any relevant animal and its progeny, along the lines of my later amendments, I do not see it as necessary to exclude companion animals in total from this Bill.

Lord Curry of Kirkharle (CB): My Lords, at the risk of appearing to be part of a Cross-Bench cabal, I would like to support the comments of my colleagues on the Cross Benches and include animals in the Bill.

This is a very minor point, but I would like to respond to the comment of the noble Baroness, Lady Bennett of Manor Castle, on productivity. This is not, in my view, about ever-increasing yields of crops, the growth of animals, the yields of dairy cows or the growth of chickens, but about improving what is real productivity, which is reducing the cost per unit of production, and improving the welfare and well-being of the animals by reducing their susceptibility to disease. It is the cost of producing the unit of production that is the true measurement of productivity, not ever-increasing yields. I believe that to be able to use these techniques to do that will be of huge benefit to both the animals themselves and to those who farm them.

6 pm

Baroness Parminter (LD): My Lords, from these Benches we have heard the arguments made by those who argue for the exclusion of all animals with great sympathy. We think that both noble Baronesses, Lady Bennett and Lady Jones of Whitchurch, made good points. Their arguments around the concerns that the public have are extremely well made. I merely add one other reason why their case is strong, which has not been referred to, which is the evidence that was produced from ACRE, which the Minister referred to. What he did not make clear in his remarks was that ACRE said that in terms of unintended consequences, and DNA being retained in organisms used through this process, the likelihood of that happening is far higher with animals than it is with plants. That is another strong argument for a slower approach to proceeding with gene editing. I do not think anybody is saying that gene editing does not have any benefits, but we should be taking that slower approach, both because of how the public have shown their concern over animals and because of the advice from ACRE that that argument has merit.

I understand where the Government are coming from and therefore I have proposed four amendments in this group that would limit gene editing to just farmed animals. I understand that the noble Lord, Lord Krebs, may have concerns over the wording I chose. My wording was chosen merely because that was the defined use in a previous piece of legislation, so we would not have to argue about what the term meant. I think it is useful in Committee to be probing the Government on excluding farmed animals for a number of reasons. First, as a number of colleagues have said, when we look at other particular areas, such as companion animals, it is not just the welfare treatment of companion animals, it is the actual characteristics that are being bred. Let us think about cropped ears or short muzzles for dogs. Those are not the sorts of things the public would like to see this legislation being used to introduce.

Equally, in the area that the noble Lord, Lord Krebs, mentioned, there is the potential for an enormous number of unintended consequences if this technique is used for wild animals, not only for the animals themselves but for the biodiversity and ecosystems around them. There is a real worry at this stage, which causes me to feel that, if animals are to be included, it would be sensible to restrict editing to farmed animals. There are two other reasons why I think it is important. The first is that it is all the public have been asked about. The Minister talked about how the FSA and the department have been consulting the public; they have consulted with the public only on farm animals, not on the use of animals more broadly. The public have had no say in that at all, so I do not think it is right or proper that we should proceed with a piece of legislation with such huge implications for animals, given public concern that could threaten the capacity of this technology, which does have benefits, to be accepted by the public. They have had no say on companion animals or wild animals. Yes, they have had some say on farmed animals, but not more broadly. That is one concern I have.

My second concern is one that I raised at Second Reading, when I asked the Minister who else in the industry, in the scientific community, in the academic community and in the veterinary community had asked for anything other than farmed animals. The response was, no one. This is about the Government, in their terms, future proofing the legislation, but I do not believe it is appropriate to go beyond what people have been asked about, be it the public, the academics, the veterinarians, the scientists, business organisations, Rothamsted or anyone. No one has been making a case for anything beyond farmed animals, so I ask the Minister to address that in his summing up. On these Benches, we would prefer animals to be excluded in their entirety and to proceed more slowly. But, if that is not the case, we think there is an extremely strong case at the moment to limit it to farm animals. We are looking for a rather better response from the Minister than he gave at Second Reading as to why he thinks it is appropriate that anything beyond farmed animals should be included in this legislation.

Baroness Hayman of Ullock (Lab): My Lords, I have a number of amendments in this group, but many of them are consequential, so I will not go through them one by one. I have also added my name to Amendment 3, in the name of the noble Baroness, Lady Bennett, and I have supported other amendments in this group, such as the amendment in the name of the noble Baroness, Lady Parminter. The reason for this is that, whether we agree that animals should be included or not, there is a wider debate as to when they should be included, how quickly they should be included, and whether all animals should be included or just some. That is why I put down a lot of amendments in this group. It is an area on which we really need to have proper debate and consideration, because it fundamentally changes much of what the Bill is trying

[Baroness Hayman of Ullock]
to achieve if you have not just animals but all animals within the Bill, and without any timescales as to when these are going to be included.

I draw noble Lords' attention to the amendment from my noble friend Lord Winston, because this is slightly different from any other discussion that we have had. It states that the legislation should not apply to equines or rhesus monkeys, for example. He also stressed that he was very cautious about including animals right at the start of the Bill. We will be very interested in the Minister's response to my noble friend, because it is a different area that he has raised.

I mentioned at Second Reading that I was concerned about the introduction of animals and how they have been included in the Bill. The noble Baroness, Lady Parminter, raised an important point as to what was discussed with the public in the earlier stages that led up to the legislation in front of us. All the secondary legislation that preceded the Bill was really about plants, not animals; likewise, much of the Government's language and discussion focused on plants, not animals. As the noble Baroness, Lady Parminter, said, the consultation that was held by Defra referenced animals, but they did not seem to be the main focus of attention. Moreover, references to animals focused completely on farm animals. Many stakeholder groups were not expecting the Government to include animals in the Bill, which is partly why many are quite taken aback and have raised concerns.

If you look at the Bill, you will also see evidence of the lack of concrete provisions around timeframes: many of them are vague and noncommittal. Much of the preparation that we believe is necessary for a regulatory framework for animals has not yet been properly carried out. In many aspects, the Bill is a framework Bill, with little detail on actual intentions or provisions on its face. It also delegates a broad set of sweeping powers to Ministers, not only to bring in an awful lot of secondary legislation but to amend primary legislation with a Henry VIII clause, which I am sure that, at some point, we will get on to debate.

No one disputes that it would be a wonderful thing to be able to tackle avian flu or PRRS. Of course, if we can find a solution to these kinds of diseases, it would be hugely beneficial—not just in a financial sense, with much of the Bill focused on marketing, but also in terms of welfare.

The noble Lord, Lord Trees, talked about the fact that he strongly supports animals in the Bill. I believe that that is because he is looking at the welfare aspects of this. However, I am concerned that he may be a little gung-ho about how quickly we need to move forward on this. I agree with him that we need to strengthen animal welfare laws. The noble Lord, Lord Cameron of Dillington, talked about the importance of breeding to remove disease and produce resistance to disease. I completely understand those arguments, but I am concerned that we may be moving too quickly without the regulatory framework that needs to be in place and without the considerations that we need to have around the inclusion of animals.

The other thing I want to draw the Committee's attention to is the fact that the European Union timetable also indicates plants, not animals. Have the Government considered the implications of the EU moving ahead just with plants at this stage if we have animals as well? A large number of animal welfare organisations have expressed concerns; I ought to declare my interest as president of the Rare Breeds Survival Trust, which is one of the groups that has said it is concerned about this Bill.

The RSPCA, which has already been mentioned, produced a particularly good briefing as to what these concerns are. Its thoughts are that, ideally, the Bill should not cover any animals but, if it does, it should be limited to farm animals only. We have heard a lot of arguments today as to why that should be. It also mentions, as one would expect the RSPCA to do, the impact of conventional breeding, particularly on dogs; a number of noble Lords have talked about that. It also says that gene editing in wild animals is done with the express purpose of altering ecosystems, with potentially unpredictable impacts, and that this should always be controlled by the GMO regulations; I would be interested to hear the Minister's response to that particular comment by the RSPCA. I know that the noble Baroness, Lady Parminter, also expressed concerns about wild animals.

As the noble Lord, Lord Krebs, mentioned, the other issue is that we need to take the public with us. If we are not careful about how we legislate around the animal aspect, we will lose them. It is terribly important that we are very careful about how we bring in and implement any animal aspects of this Bill, if at all. The Nuffield Council also raised concerns about bringing animal welfare in, stating:

> "The welfare of animals is not a characteristic, like growth rate or milk yield, but a consequence of the interaction of biological and environmental factors."

That is a really important thing to take home with us as we look at how we can move the Bill forward. It also said:

> "There is a risk that the focus placed on individual traits in the Bill could distract from this broader consideration of welfare."

It is terribly important that that concern is built into the Bill.

In our debate on a later group, we will debate the welfare advisory body in the Bill; now is not the time to do so but the question of whether that group is adequate will be a really important part of the Bill, particularly in terms of whether we should amend it to support that concern. Compassion in World Farming also raised concerns about this issue; I will not go into the detail as we discussed this at Second Reading.

I am slightly concerned that it has been suggested that ethical concerns should not be part of the broader debate. I would say that, where animal welfare is concerned, they should be. We must not forget those ethical concerns either.

I mentioned Professor Henderson, the chief scientific adviser at Defra, earlier. I am going to mention him again, because I thought his evidence was particularly interesting in the Commons Committee debate. He said:

> "The passage of this Bill has pointed to those problems in animal welfare and made them clearer, and made it necessary to deal with them quite explicitly before we can enact legislation about precision breeding for animals."

He also said that the process of considering the evidence on animal welfare

"will have to take place before secondary legislation can be enacted. The process for that is laid out in the Bill, and the timescale will be"—

as referenced by my noble friend Lady Jones—

"something like two to three years where scientific input will feed in."—[*Official Report*, Commons, Genetic Technology (Precision Breeding) Bill Committee, 28/6/22; col. 18.]

Where in the Bill is that set out, so that we have that guarantee of two to three years? Neither the process nor the timescales are laid out in the Bill. If we need more time to get the provisions right, why are we not focusing on doing that rather than asking noble Lords, essentially, to allow them to pass and then ask all these questions and put in this detail afterwards? That, to me, is not good legislation. These are big decisions we are making.

6.15 pm

Unless we can exclude animals now or restrict their inclusion, I am concerned that Defra and the Government will be moving forward with legislation before carrying out a very large piece of work that they clearly and self-evidently need to do, as they have admitted themselves. We need to have all of this laid out on the face of the Bill, not just wait for proposals to come forward in secondary legislation at a much later date.

The Minister has talked about the need to future-proof. I absolutely understand that, but we need to have those timescales—those restrictions, if you like—about when things can happen laid out clearly in the Bill. We will come to group 5 on implementation shortly, and I am sure we can look at this further then. There will also be more debate around animal welfare in group 8. However, I am concerned that we are moving forward without the information and the right regulation in place at this stage.

Lord Benyon (Con): My Lords, when I was in another place, there was a free vote on the smoking ban. I remember a panicked Back-Bencher coming towards the Lobbies and saying that he did not know how to vote, because he hated smoking but loved freedom—what was he to do? Someone just said to him, "That way for freedom from smoke; that way for freedom to smoke." I mention that because it shows that you can look down two ends of a telescope and come at this from two directions. I entirely understand that people who want to oppose the Bill in its entirety will find hooks on which to hang that belief, and that others who see merit in this will try to see a path down which to go.

I will try to address the points raised. First, for clarity, I say to the noble Baroness, Lady Bennett, that fungi are out of the scope of the Bill. I am sure she will be pleased to hear that. I say to the noble Baroness, Lady Jones, that animals were not a late inclusion into the Bill. There was a consultation in March 2021 which included animals, and a response to that was published in September 2021, so I do not think the idea that this was a late entry into the Bill stacks up.

I am grateful for the opportunity to further build on the Government's position on why we think it is vital that animals remain part of the Bill. There are many potential benefits of enabling precision breeding in animals, including, as we have heard, to improve the health, welfare and resilience of animals. We have a real opportunity to harness the great research that is already taking place in the UK. Noble Lords highlighted some of this great potential during Second Reading, but to reiterate, our leading scientists are already using precision breeding to develop resistance to a range of diseases that impact animals across the country.

We have already mentioned at Second Reading research focused on resistance to bird flu in chickens, resistance to sea lice in farmed salmon and resistance to porcine reproductive and respiratory syndrome, which was mentioned by the noble Lord, Lord Trees—

Lord Winston (Lab): I have been looking very carefully at the literature on gene editing for this debate, to remind myself. Although the Minister praises British research—of course we like to promote British research and British universities, being at one myself—I have to say that what I see is that the papers describing the risks of gene editing in detail largely come from other countries, including Asia and America. I do not think we can ignore the fact that there is a wide body of opinion that recognises that this is still a relatively dodgy technique, particularly so in animals, and therefore we need to go carefully before we start to implement it as a sort of service that we might be able to sell.

Lord Benyon (Con): I am grateful to the noble Lord and will cover that point in a moment.

I was making a point about PRRS, but there are also developments abroad in producing cattle that are more heat tolerant and resistant to climate change. As was pointed out at Second Reading, there is potential to reduce methane emissions from cattle, which is vital for more sustainable agricultural systems.

I agree with the noble Lord, Lord Trees, that there are many examples that demonstrate the potential to bring significant health and welfare benefits to our animal populations and economic benefits to our farming industries. That is why we are looking at this down one end of the telescope. I hope I can persuade noble Lords that this a way that offers great potential, particularly in the area of animal welfare.

It is vital that we create an enabling regulatory environment to translate this research into practical, tangible benefits. This is a key objective of the Bill, and removing animals from the Bill would hinder us from realising any benefits of these technologies for animals. Ensuring that these technologies are used responsibly and enhance animal health and welfare is vital; I think we are all agreed on that. That is why we intend to take a stepwise approach in implementing the Bill, with regulatory changes to the regime for plants first, followed by that for animals. We want to make sure that the framework for animal welfare set out in the Bill is effective, and we will not bring the measures on precision breeding into effect for animals until this system is in place.

It is important we get this right, and that is why we have commissioned Scotland's Rural College to carry out research to help us develop the application process for animal marketing authorisations. This will focus on the welfare assessment that notifiers will have to carry out to support their welfare declaration. This

[Lord Benyon]
research will help us determine an appropriate welfare assessment for precision-bred animals and identify the evidence and information that must be submitted to the welfare advisory body along with the notifier's welfare declaration. The research will involve experts from the Animal Welfare Committee and a wide range of organisations with expertise in animal welfare, genetics and industry practice.

As the noble Lord, Lord Trees has noted, the Bill introduces additional animal welfare standards, over and above existing animal welfare legislation. We are clear that these additional safeguards will complement our existing animal welfare regulatory framework for protecting animals. This includes the Animal Welfare Act 2006, the Welfare of Farmed Animals (England) Regulations 2007 and the Animals (Scientific Procedures) Act 1986. A suite of legislation exists. I absolutely refute the points that have been rightly raised that this can be seen as a fast passage towards higher density occupation of buildings because birds are somehow resistant to diseases caused by tight accommodation. There is already legislation that controls the densities and other animal welfare provisions. The idea that this is somehow going to allow producers to get round existing legislation is not the case, and there are additional animal welfare safeguards within the legislation.

If we want to drive investment in new research and realise the potential benefits for animals, we need to include them in the Bill. By doing so, we are providing a clear signal that the UK is the best place to conduct research and bring products to market.

I move now to the topic of limiting the scope of the Bill to certain animals. As we have already discussed, we know that there are benefits from enabling precision breeding. This technology has the potential to improve the health and welfare of animals. This applies to a range of animal species. I hope that the points I am coming to now will address the points made in the amendments and the remarks of the noble Lord, Lord Winston, the noble Baroness, Lady Bennett, and others.

The definition of animals in this Bill is broad so that the legislation remains durable for future years and to encourage beneficial research and innovation. Much of current research is on animals used in food production. We want to ensure that the potential benefits, such as improved welfare, can be realised across different species in a responsible way as research advances. This includes species that are kept only in this country as companion animals. Independent scientific advice that precision-bred organisms pose no greater risk than traditionally bred organisms applies to farm and companion animals.

To quote one example, hip dysplasia in certain breeds of dog is a devastating condition; it causes a lot of misery for the dog and its owners, and results in the dog's early death. I do not say that there is some quick and easy path to resolving this, but there is a lot of research going on to traditionally breed out that condition. I want to see this sort of work speeded up. It seems right to include the ability to tackle these sorts of conditions in companion animals in this legislation, with adequate safeguards.

It is important to note that this is just the beginning. We intend to take a step-by-step approach with animals. We will not bring the measures set out in this Bill into effect in relation to any animal until the system to safeguard animal welfare is fully developed and operational. This system is intended to ensure that, before a vertebrate animal or its qualifying progeny can be marketed, their health and welfare will not be adversely affected by any trait that results from precision breeding. As I said, we have started by commissioning Scotland's Rural College to conduct research that will help develop this application process.

I acknowledge the amendments tabled by noble Lords in relation to the range of animals covered in the Bill. The suggestion from the noble Lord, Lord Krebs, to pursue and build up the step-by-step approach is the right way forward. I hope that noble Lords will be reassured to know that the Bill, as currently drafted, already allows us to take this step-by-step approach through commencement regulations; for instance, by commencing the relevant provisions of the Bill in relation to some animal species before dealing with others. I hope this offers some reassurance to the noble Lord, Lord Winston. I hope that the points I have made will enable noble Lords to not press their amendments.

Lord Trees (CB): On companion animals, I can understand that this is a difficult and quite controversial issue. There is an irony and a paradox—for example, around short-nosed dogs; the so-called brachycephalic breeds—and we can look at it with either a glass half full or a glass half empty approach. The irony is that, through natural, traditional breeding, we have bred animals that are deformed. Brachycephalic breeds have a markedly reduced life expectancy than breeds with long noses. They have not only problems with obstructive airway disease but delivery by Caesarean section is much more frequent, and they have ocular and skinfold problems. Genetic manipulation and editing could help reverse these trends much more quickly than might happen through traditional breeding. We need to be open minded about the potential for good, as well as the potential for less good outturns.

Lord Benyon (Con): I totally agree with the noble Lord: there are opportunities here. With the balanced approach that we have taken and the step-by-step approach with which we will implement the legislation, I hope that we can quickly get to the place that the noble Lord described, where we start to reverse some of the terrible things that we have seen in traditional breeding processes. I hope that the Bill can be seen as paving the way for higher standards in animal welfare for all kinds of animals.

I am about to sit down, but I can see various noble Lords poised to step in and I am very happy to take more points.

6.30 pm

Baroness Hayman of Ullock (Lab): I thank the Minister. He has talked about a step-by-step approach a few times. Why can that not be put in the Bill, so that we are secure that things will not be able to happen until we are ready for them?

Lord Benyon (Con): All I can do is assure noble Lords that nothing will happen before we are in the right position to do it. That is why we have commissioned the work with Scotland's Rural College, and we are working with important stakeholders such as veterinary colleges and others to make sure that we get this right.

The priority will be to try to do this for farmed animals first, and we want to make sure that we are operating a step-by-step approach. If we put it in the Bill, it may be too prescriptive, because we are in a fast-moving area of science, and it may constrain the ability of the scientific community to progress this if we do it in the wrong way. We want to give as much freedom as possible, and that is why we are adopting this process.

Lord Winston (Lab): I hope the Minister will forgive me—I have been a complete pest to him this afternoon and will probably continue to be one—but it is nothing to do with the scientific community. That community can take as long as it wants to get the right answers; it is the marketing of these animals that concerns us. We have no problem with the science, providing it is done humanely, and we recognise that that is the Government's intention because we already have very good legislation to do that, but we have to accept that the science is still uncertain. That is why we are concerned that we might make mistakes.

Lord Benyon (Con): That is precisely why we want to have the proper regulatory framework in place, and that requires consultation. We also have a flowchart, available on the Bill webpage, that sets out very clearly the process for applying for an animal marketing authorisation. I will not delay noble Lords by going through each of the six steps in the process, but it is very extensive and exhaustive and clearly sets out how we propose to do this.

It gives the kind of reassurance that a lot of noble Lords talked about regarding the public's acceptance. To address that point, it is a matter of how you put the question: if you do so in the way in which the noble Lord, Lord Trees, just did, mentioning the benefits of the legislation, I think a huge majority of people will support it. If you ask it in a different way, you will get a different answer—that was the problem 25 to 30 years ago.

The noble Lord is right, of course: the scientific community will move at the pace that the money allows it to, and the market will create demand for the research. But we want to make sure that we have a good, proper regulatory process that reassures the public and is clear to developers of these products, so that they can see how they will be required to sit within that sort of framework.

Baroness Bennett of Manor Castle (GP): I thank the Minister for his answer and thank everyone who contributed to what has been a very rich, full and very informed debate. I am going to deal first with the structural questions just raised by the noble Baronesses, Lady Hayman of Ullock and Lady Jones of Whitchurch.

We again have this problem that we have to wait for the regulations and trust the Government. I appreciate that the Minister was doing his best to persuade us, and I felt that he really wanted the opportunity to have a PowerPoint presentation here to show us a slide of his flowchart. But this is all about taking it on trust. Almost certainly, in the timeframe the Minister referred to, we are talking of not the same Government implementing this—I am not casting any aspersions on who the next Government might be—and the noble Lord not being in a position to guarantee what will happen in the future. We are left with this uncertainty and it not being clear. We know that tomorrow will test your Lordships' House on just how much it is prepared to stand up against regulations. We shall see what happens then.

The Minister responded to me on the standards of what I call factory farming. He said that there is already legislation on this, but I say that that legislation is grossly inadequate and that we have huge disease problems because of that. Tightening up animal welfare regulations and regulations for housing animals in this country would greatly reduce the need to deal with problems of disease.

It is interesting that the Minister also said, perhaps a couple of times, that including animals is about making the UK the best place to conduct research. I come back to the point I made on an earlier group about whether this Bill is for animal welfare, food security for farmers, or for our biotechnology industry. It appears that we are hearing that it is for the biotechnology industry.

I am not going to run through all the contributions, because the noble Baronesses, Lady Parminter and Lady Hayman, have already provided us with a good summary, but I will draw together the responses from the Minister and a number of others, including the noble Lords, Lord Trees and Lord Cameron of Dillington. There have been suggestions about tackling disease, but we are talking about ecological niches here. Let us say you produce pigs that are entirely resistant to a particular disease; you are producing resistance to one species or one threat. You are very unlikely to produce widespread resistance, so you are opening up an ecological niche for another disease to come in, if you keep animals in conditions that allow that to happen.

We can take a practical example from what is happening in human society at this moment. Over many centuries, human societies have had conditions that have allowed the spread of a wide range of respiratory diseases.

Lord Winston (Lab): I am grateful to the noble Baroness for giving way. Does she not agree with me that we have been somewhat dismissive in this debate of the use of vaccines? Surely one of the ways to look at this with more intensity, and perhaps more money, is to look at more vaccines not just for human health but for animal health. At the moment, the research there is nothing like as much as it is for humans.

Baroness Bennett of Manor Castle (GP): I thank the noble Lord for his intervention and agree, although we know that animals kept in good conditions of husbandry are much less susceptible to disease. My first approach is to keep animals in conditions where they are not susceptible to disease, and then you do not need to go

[Baroness Bennett of Manor Castle]
to the expense and effort of developing vaccines or using antibiotics, which have the issues with resistance that were raised by the noble Lord, Lord Cameron.

I was talking about respiratory viruses. Our population is threatened now by not just Covid-19 but a number of other coronaviruses that have long been causing respiratory diseases in humans. We are threatened by rhinoviruses and by flus, all because of conditions that make us prone to respiratory illnesses spreading. Tackling just one of those, as we have done with the Covid-19 vaccine that the noble Lord just referred to, with great effect, does not mean that we will stop all those other forms of respiratory illness.

That has covered the main points. I want to come back to the amendment from the noble Lord, Lord Winston, which raises some interesting points on great apes. I would extend this to all simians or monkeys. I ask your Lordships' House to consider whether we actually want to be gene editing great apes or monkeys.

The point about equines is also very interesting when we think about horseracing and the enormous amount of money and the possibly shady characters involved in it. Whether we really want to see gene-editing in racehorses leads us into the companion animals question. It is a real area of concern. On that, the noble Lord, Lord Trees, referred to brachycephalic breeds that are identified as a problem area. If the breed societies were to say that they were going to create really rigid rules and change their definition of what those breeds are supposed to look like, that would be another way, a kind of husbandry way, of tackling the issue.

I will of course withdraw the amendment at this stage, but before I do that, I want to ask the Minister a question. Following on from the noble Lord, Lord Winston, does he think we should leave open the possibility of gene-editing great apes?

Lord Benyon (Con): I do not think that any conversation I have had has considered what our priorities would be. Our priorities would be to look at farmed animals and possibly the benefits for companion animals. We are not a range state when it comes to those sorts of animals, and I cannot see that being a priority.

Baroness Bennett of Manor Castle (GP): I thank the Minister for his answer, but I note that the Bill allows that to happen. There is nothing in it to say that it would not. I have no doubt that this is an issue that we will return to on Report, probably at some length, with a number of choices before us. I beg leave to withdraw the amendment.

Amendment 3 withdrawn.

Amendments 4 to 11 not moved.

Amendment 12

Moved by ***Baroness Bennett of Manor Castle***

12: Clause 1, page 1, line 14, at end insert—

"(2A) For the purposes of subsection (2)(c) an organism's genome could not have resulted from traditional processes or natural transformation if that organism is, or the processes used to create it are, subject to patent protection."

Member's explanatory statement

This is a probing amendment examining how, where a genetic technology breeding process for any living organism has been granted a patent under international or national law, it can be the result of a traditional process or a natural transformation since novelty is required for granting such a patent.

Baroness Bennett of Manor Castle (GP): My Lords, I apologise that I seem to be dominating; I am sure we will get away from this. Amendment 12 appears in my name. In some ways we are returning to some of the issues that we were discussing in the first group about the definition of "traditional" or "natural". If a genetic technology breeding process has been granted a patent under international or national law, novelty is a condition of acquiring a patent. Therefore, how can it be traditional or natural? I freely confess to your Lordships' House that I am not an expert on intellectual property, and Amendment 74 in this group in the name of the noble Lord, Lord Krebs, and others deals with how this interacts with intellectual property law and the issues that were raised by your Lordships' House's oversight committees which the Government have insufficiently considered. I am going to leave that entirely to the noble Lord, Lord Krebs, because intellectual property is definitely not my area.

However, I think it is worth exploring how something can be both traditional or natural and patented, whether we are using that as the process to create an organism or the organism itself. It is worth thinking about how the words "traditional" and "natural" are used. The idea is that something traditional or natural has been tried or tested for generations. It is associated in the public mind with safety. We know that food, feed and seed labelled as "traditional" or "natural" draw a higher level of consumer trust, so these words are important in their own terms and in terms of the technical understanding.

6.45 pm

It is worth going back to CRISPR-Cas9 technology and noting that the four pioneers in this area were once collaborators and colleagues but are now involved in a bitter patent dispute over who has the right to the core technology. They are said to have collectively paid €16 million in legal fees to prove that their technology is novel, invented and industrial, which seems to mean that it cannot also be traditional and natural. I note that one of those inventors, Jennifer Doudna, signed a deal with Dupont in 2015 to serve gene-edited maize to the American consumer. So, if something is indeed novel, uniform and anthropogenic, surely a proper risk assessment is essential and should be an absolute requirement before such processes or products are authorised or given access to the English market. This relates to some issues we will discuss later, on labelling: surely consumers and farmers have a right to know whether their purchases are novel, untested, artificial, synthetic or human-made, as the existence of a patent says they must be.

The amendment seeks to bring coherence to the Bill. It does not primarily deal with issues of patents as such, but it shows how patents and the claims of the Bill simply do not fit together. I beg to move.

Lord Krebs (CB): My Lords, I will speak to Amendment 74 in this group. I thank the noble Baroness, Lady Bennett, for crediting me with knowledge of international law on IP, but in fact I am not very well informed on that. I will raise some questions that were put to me by the Royal Society, which suggested an amendment of this nature. I am also grateful to the noble Baroness, Lady Hayman of Ullock, and my noble friend Lord Patel for putting their names to the amendment. My noble friend Lord Patel sends his apologies; he is stranded in Scotland, as are many other noble Lords, I suspect.

My amendment merely asks the Government to review and publish guidance on the implications of the Bill for the law of intellectual property. This is important because all those involved in the development and marketing of precision-bred organisms need to know where they stand. Are these organisms to be treated, from the point of view of IP, like transgenic organisms or like conventionally bred organisms? GMOs currently enjoy greater intellectual property protection than new plant and animal varieties produced using other breeding technologies, which is justified in part by the greater expense of securing regulatory approval for the cultivation of varieties carrying GM traits.

But intellectual property protections significantly reduce the accessibility of the benefits of genetic technologies, and they also contribute to public concerns about the commercial use of technologies. As we heard at Second Reading, the fact that Monsanto and other companies had patent rights for GMOs and had inserted terminator genes into the plants was a major objection to transgenic crops 20-odd years ago.

If genome-edited products are not treated as GMOs, they should enjoy no greater intellectual property protection than the products of traditional breeding technologies, such as plant breeders' rights—the noble Baroness, Lady Bennett, also made this point. Members of the plant breeding industry need to be able to breed from each other's varieties, and it would not be in the public interest if the adoption of genome editing for crop improvement were to compromise the ability of plant breeders to make crosses with each other's varieties.

Plant breeders may argue that they should benefit from patent protection in the same way as for GMOs in order to recover their costs, including the royalties to which the noble Baroness, Lady Bennett, referred on the CRISPR technology. However, I suggest that the public interest overrides this argument. Therefore, I very much hope that the Minister will confirm that, since precision-bred organisms are defined in the Bill as equivalent to organisms that could have been produced by conventional breeding, they will not enjoy greater IP protection than conventional varieties. Surely this is the logical conclusion.

Baroness Bakewell of Hardington Mandeville (LD): My Lords, the noble Baroness, Lady Bennett of Manor Castle, and the noble Lord, Lord Krebs, have spoken eloquently to this small group of amendments. The technical aspects of the Bill are complex and he has already mentioned the matter raised by the Royal Society. If a new seed variety is developed using GMOs, as he said, it has greater intellectual property rights than one that is developed using other breeding technologies. If some genome-edited products are not treated as GMOs, they should enjoy no greater intellectual property protection than the products of traditional breeding technologies, such as plant breeders' rights.

The whole issue of novel foods is affected by the Bill and these amendments. The Royal Society believes that those in the plant breeding industry need to be able to breed from each other's varieties, and it would not be in the public interest if the adoption of genome editing for crop improvement were to compromise the ability of plant breeders to make crosses with each other's varieties. I am really sorry that the noble Lord, Lord Taylor of Holbeach, is not here because I feel he would be interested in this section. The ownership of intellectual property needs to be addressed before the Bill moves forward to Report. I agree completely with the noble Lord, Lord Krebs, and I look forward to the response of the Minister.

Baroness Wilcox of Newport (Lab): I am grateful to the noble Baroness, Lady Bennett of Manor Castle, for tabling Amendment 12, and to the noble Lord, Lord Krebs, for tabling Amendment 74, which my noble friend Lady Hayman of Ullock was pleased to sign. Issues around intellectual property were not explored in any detail in another place; nor did the topic feature heavily in the *Hansard* report of Second Reading. Some may argue that such matters are pushing the scope of this legislation, but we believe it is vital that all interested parties understand the regimes that will apply once the Bill is passed and enacted.

For a product to make it to market, it will have been subject to research, testing, scaling up and the release and marketing processes laid out in the Bill. This will involve significant costs for those who develop the technologies and associated products. We understand that they will want to protect that work and the underlying financial investments to the best of their abilities. On the other hand, for this process to be successful, we need to see fair prices for the farmers who will utilise these technologies or the new plant and animal varieties that arise from them. At present, it is not clear what IP regimes will apply. We can make assumptions, but there is no certainty. As a result, we do not know how many players will bring these new products to market, nor how many farmers will be able to afford them. Amendment 74 offers a way forward, requiring the Secretary of State to publish guidance on these matters prior to bringing the bulk of the Bill's provisions into force.

These matters are incredibly complex and perhaps not best dealt with through additions to the final version of the Bill. However, this is Committee, and we hope that the Minister will be able to provide an indication that this work is not only in progress, but that appropriate guidance will be in place at the earliest opportunity.

Lord Benyon (Con): I thank noble Lords for their amendments regarding intellectual property laws. I will first take the probing amendment in the name of the noble Baroness, Lady Bennett of Manor Castle, which would prevent an organism from qualifying for precision-bred status if it was subject to a patent, either on the product itself or on the process used to

[Lord Benyon]
produce it. This provides an opportunity for us to explore how a precision-bred organism can be patentable, and what it means for such an organism to be capable of having

"resulted from traditional processes or natural transformation".

As I am sure she is aware from previous debates in Committee, it is the final genetic composition of an organism that we are considering when assessing whether a plant or animal meets the criteria for being "precision bred" as set out in the Bill. This is in line with the scientific advice we have received: that it is the final genetic and phenotypic characteristics of an organism that are important and not the technology or process used to produce it.

This approach differs fundamentally from the current principles used to determine whether patents are available for plants and animals whose DNA has been altered using modern biotechnology. Unlike the definition employed in the Bill to determine whether an organism is precision-bred—which, as I have said, focuses on the end result—patent principles focus on the technology or processes used to produce these plants and animals.

The definition of a "precision bred organism" should continue to be based on scientific evidence and advice. In continuation of this logic, it would be disproportionate and unscientific to prevent a qualifying precision-bred organism from having precision-bred status on the basis of the granting or not of a patent. To prevent precision-bred organisms from obtaining patent protections would go against the core principles on which the Bill is based: that regulation should be proportionate, robust and driven by the evidence.

An invention must meet a number of legal requirements if a patent is to be granted. The granting of a patent is determined not only by the nature of the invention but by other legal requirements, including whether the invention is new or non-obvious. This is not the same as asking whether an invention that did not exist previously could, in principle, have been produced through a different method. As such, the presence or absence of patent protection cannot be used to determine if a particular DNA sequence could have resulted from traditional processes or natural transformation.

Patents represent an important mechanism for innovators to gain return on their investments. As a result, preventing organisms from being classed as "precision bred" if those organisms or the processes used to create them are subject to patent protection, would likely deter uptake of the technologies that the Bill wishes to facilitate. Ultimately, the UK would lose the significant benefits that implementation of the Bill could bring.

Amendment 74 would require the Defra Secretary of State to review and publish guidance on the implications of the genetic technology Bill for intellectual property law. As I am sure that noble Lords are aware, in the UK the Intellectual Property Office is responsible for patents. I assure noble Lords that we have worked closely with the Intellectual Property Office in this area. UK patent law does not specifically exclude patents from being granted on precision-bred plants and animals. Indeed, a patent may be granted if all the requirements for a particular invention are met—novelty, utility, and non-obviousness.

The Bill does not make any changes to laws associated with obtaining a patent; nor does it alter the process by which an applicant would apply for patent protections. Breeders wishing to patent their precision-bred plant or animal should therefore undertake this process in the same manner as for all other inventions and under the guidance of the Intellectual Property Office.

Most interest in this area has revolved around the use of patents that protect precision-bred organisms. However, it is important to note that other protections for intellectual property are available. For example, a plant breeder may want to obtain protection using plant variety rights. In animals, breeders generally gain protections through contracts with buyers, which stipulate terms to ensure their trait of value is protected. Engagements with industry stakeholders have highlighted that fair access and value gains for farmers must balance with restrictions on the use of protected material in order to enable a return on investment. In plant breeding, licensing platforms which facilitate access to patented material have been borne out of the need to create this equilibrium. We envisage that a similar situation would arise should breeders decide to protect their precision-bred organisms. Ultimately, patent law strikes a balance between incentivising innovation and allowing access for farmers and breeders, precisely the point that the noble Baroness, Lady Wilcox, was making.

7 pm

Lord Krebs (CB): I do not know who drafted this response but it is a masterpiece of obscurantism, in my view. I do not blame the Minister; he is simply reading out what his civil servants have given him. I could not understand—maybe because I am falling asleep or something, but I do not think I am—whether the answer is that PBOs are equivalent to the plants or animals that could be produced by conventional breeding, and therefore enjoy the same protections, or whether they are different. Will he just nail that point down, with a very simple yes or no? Is his answer that precision-bred organisms are treated as equivalent to those that could be produced by conventional breeding, and therefore they enjoy the same patent protections?

Lord Benyon (Con): I apologise to the noble Lord if I am sending him to sleep, but this is a complex area. Patent lawyers will dance on the head of a pin on some of these issues. As I said, we have worked with the Intellectual Property Office to get this exactly right and to address precisely the point he made earlier about some of the difficulties that were faced, with large international companies owning the rights to seed entitlements. That caused great difficulty in the past.

I shall just read one bit to him again, and if the noble Lord could try to stay awake, it will be an achievement that I will rejoice in. The Bill does not make any changes to laws associated with obtaining a patent; nor does it alter the process by which an applicant would apply for patent protections. Breeders wishing to patent their precision-bred plant or animal should therefore undertake this process in the same manner as for all other inventions and under the guidance of the Intellectual Property Office.

The Bill is also an attempt to provide precisely the balance that the noble Baroness, Lady Wilcox, stressed. We want to secure the rights of those who are investing enormous amounts of money in the development of these technologies, while also not making it impossible for farmers—precisely the people we want to have access to these technologies—to have access. That is the balance we are seeking to achieve.

I can work only on the best legal advice I am given. There are noble Lords in this Committee whose speciality is intellectual property law, and I am sure they could dance much more dextrously on the head of that particular pin than I.

Lord Winston (Lab): I wonder if we could "strictly" stop dancing just for a moment and come back to the question of the noble Lord, Lord Krebs. I have to declare an interest in the register: I have a company called Atazoa, which is responsible for modifying the genes not of embryos but of individual sperm. We have of course also been working with eggs. This is before fertilisation—before the organism is formed. That is subject to a number of patents which have raised a certain amount of money for our research, and the research has been moderately fruitful—not as fruitful as I would have liked it to have been; it has not made any major changes.

There is an issue here. First, what happens if we produce a farm animal as a result of that technique? Does that come under the licence or not? Secondly, during the process of gene editing, it is very probable that people will make new editions to the modification of techniques to find new ways to put together what is quite a complex process; even though it is fairly efficient and simple to do, it remains complex. What happens, for example, with regards to improvement of the technology, rather than the animal husbandry side of it? Does the patent there still stand or not?

Lord Benyon (Con): I have to be honest with the noble Lord and say that I will write to him on this. He makes a very good point. I can think of it only in terms of a standard invention. In intellectual property terms, you secure the creation of whatever it is, with whatever characteristic it has, and others may come along and improve it. The line on intellectual property exists until they change it beyond its original purpose, and I quoted the other criteria earlier. I am going to write to both the noble Lord, Lord Krebs, and the noble Lord, Lord Winston, to give more precise answers to those particular points. With that, I hope the noble Baroness is willing to withdraw her amendment.

Baroness Bennett of Manor Castle (GP): My Lords, I thank the Minister for his answer and everyone who has contributed to this short but very dense—I think that is the appropriate adjective here—debate. I cannot help feeling that, should we revisit this on Report, as I suspect we may, we will need a couple of IP KC specialists to hand it over to, rather than leaving it to be tangled with by those who are not legal specialists in this area. The noble Baroness, Lady Wilcox of Newport, nailed it: it feels like this has not been properly worked through, and it certainly has not been explained to the Committee. That is exactly where we have arrived at.

I will put some more questions to the Minister, because I am wrestling with this. I freely acknowledge that I am not an IP law specialist, by any means, but how can something that is patented be natural and traditional? Those two things are simply incompatible in law, and certainly in public understanding. That is what my amendment addresses, and I do not believe the Minister has dealt with that issue.

More specifically and concretely, and perhaps easier to answer—although I understand if the Minister wants to write to me—he referred to some of the tangles that had occurred previously with GMO technology. Seeds had blown from one field to another, and a farmer who had not even planted the patented crop found themselves in legal difficulty with its owner because they were illegally growing the seeds, even though they did not want them. Some of them may even have been organic farmers, who definitely did not want those seeds. Can the Minister assure me that we will not see this situation arising with so-called precision-bred organisms in the UK, particularly plants in this case—I am not sure we are talking about animals as much? Also, what happens if a genetic trait cross-breeds with or appears in a weed? Who is responsible for that? Is the owner of the intellectual property responsible for what happens with the weed?

Lord Benyon (Con): That last point would have been dealt with in the process for ACRE's analysis of its worthiness as a precision-bred organism that can be taken to market, as it clearly does not sit within the intent of the applicant.

All I can say to the noble Baroness, as I said earlier, is that we want to achieve a balance in encouraging the development of this. She was wrong earlier to say that this is just for commercial activity. It is very much not. There are other benefits, public goods, that the Bill achieves in animal welfare, tackling climate change, improving our environment, and reducing the requirement for pesticides and fertilisers. Just as there is a balance between those public goods and encouraging commerce and the ability of organisations to take products to market to be of advantage to the UK economy, the Bill also tries to achieve a balance between securing the intellectual property rights of those who have invested large amounts of money in the development of precision-bred organisms and the importance of making those organisms available to precisely the people who we want to have them. In most cases, that will be producers of food.

Baroness Bennett of Manor Castle (GP): I thank the Minister for tackling those questions. I feel that it might be best for me to write to the Minister to spell out the details of the questions that I am not sure I am sufficiently equipped in the IP area to formulate now. We are going to revisit this at Report, and I do not think we have heard any kind of argument against Amendment 74 and the idea of a review. In the meantime, however, I beg leave to withdraw the amendment.

Amendment 12 withdrawn.

Amendments 13 to 15 not moved.

Clause 1 agreed.

Amendment 16

Moved by ***Baroness Bakewell of Hardington Mandeville***

16: After Clause 1, insert the following new Clause—

"Internationally agreed definition for precision breeding

(1) The Secretary of State must consult with European partners and actors to agree a definition of precision breeding.

(2) If a definition is agreed under subsection (1), the Secretary of State must make regulations to apply it for the purposes of this Act in place of the definition in section 1(2).

(3) "European partners and actors" includes but is not limited to—

(a) the European Union;

(b) European Union member states.

(4) Prior to entering into consultation with European partners and actors to establish an agreed definition of precision breeding, the Secretary of State must consult representatives of—

(a) farmers;

(b) devolved nations;

(c) suppliers;

(d) food producers;

(e) animal welfare organisations;

(f) consumers.

(5) Regulations under this section are subject to the affirmative procedure."

Baroness Bakewell of Hardington Mandeville (LD): My Lords, I will speak to Amendment 16 in my name and I have added my name to Amendments 76, 77 and 78 in the name of the noble Baroness, Lady Bennett of Manor Castle. There is considerable concern about just how the measures in this Bill will be implemented. It is a considerable move away from the measures that operated under the EU. I and others understand why this is necessary. However, in order for our horticulture and farming sectors to continue to trade with our European partners, it will be necessary to provide reassurance on the process and outcomes involved.

Despite government trade deals with countries that are not on our doorstep, Europe is on our doorstep. Existing trade with the EU is the bedrock for many selling their crops and carcasses on to Europe. Agreeing just what the definition will be of a precision-bred seed or crop is going to be vital. If such agreement cannot be reached, it will have a devastating effect on the rural economy. Many of those who have provided briefings have commented on the lack of consultation that took place prior to the introduction of the Bill. It is possible that, given the reception of previous attempts to introduce GMOs, the Government decided to bypass this process. However, all those involved want to be consulted and wish to understand the process and just what the outcomes will be for them.

The list in Amendment 16(4)(a) to 16(4)(f) might see long, but I believe that each one of these consultees feels that they should be able to make their voice heard. The British Veterinary Association believes that the move away from the EU-regulated process for gene-edited organisms would potentially jeopardise its relationship with a key trading partner in pursuit of profitable trade deals with markets where animal welfare is a lower priority than in the UK. The trade deal announced today with India is a case in point.

Deregulation of gene editing in England is also likely to create burdens within the UK, jeopardising the principle of mutual recognition, which is necessary for frictionless trade. While scientific progress is necessary, it must be based on accurate science. It is necessary to take those involved with you. The Royal Society found in its evidence that dialogue with members of the public should be involved in the regulation of genetic technologies. A proposal that is endorsed by evidence of public involvement in the regulatory process increases the perceived trustworthiness of the process. Surely this is what the Government should be aiming for.

Amendments 76, 77 and 78 make further reference to trade and the importance of ensuring that businesses, especially small and medium-sized enterprises, are not adversely affected by the measures in this Bill. If our exports of precision-engineered food do not comply with foreign regulations, this could result in foreign markets changing their preference for our goods. This will have an effect on both large and small businesses and would be a retrograde step.

We are debating a very important step today and on Wednesday. Everyone needs to be signed up for what is likely to take place: farmers, the devolved Administrations, suppliers, food producers, animal welfare organisations and, especially, consumers need to be consulted. If they are not, we are in danger of throwing the baby out with the bathwater. I beg to move.

7.15 pm

Lord Cameron of Dillington (CB): My Lords, surely the whole point of this Bill is to speed up the process of bringing into being the plants and animals that the world really needs, as a matter of some urgency, to prevent our populations at home and abroad—I mentioned lots of examples in sub-Saharan Africa at Second Reading—starving, and to avoid further destroying our planet. We hope that our scientists will be able to make a difference sooner rather than later and show the world what can be done. We must lead on this and encourage others to follow, hopefully in the EU and sub-Saharan Africa. So why on earth should we as politicians want to delay this process? Surely that is going against everything that this Bill is trying to achieve.

It might be helpful if I gave some examples of how the whole process will work. Let us say a seed-breeding company finds and edits a variety of wheat for a trait of value—such as stronger straw that does not go flat just before harvest, or resistance to drought or Septoria. We then have its in-house testing for off-target characteristics and, above all, for the stability of the crop through the generations. I am advised that this testing takes three or four years, with three or four generations being bred. By the way, EFSA and ACRE would both be informed at a very early stage that this wheat was being bred, and they would be involved. Then you have a further two years—and two generations—of statutory testing. Then, hopefully, your new variety gets a recommended listing. You probably have another one or two years of multiplying up the seed for the farmers' marketplace. That is six or seven years from the original genetic editing before the crop gets into the market on a commercial basis.

In animals, the same multigenerational gap exists between the original edit and the product being produced—except, in this case, each generation of cattle, for instance, will take an absolute minimum of two years, and I believe a single generation of salmon can take up to four years. So it will be a good 12 to 16 years after the actual gene editing before any such beef or salmon product reaches our plates. Breeding improvements in a species is a very long-term process, even with gene editing, so we cannot afford to wait any longer. I believe that we have to get on with it.

There will be some companies that will hold back on certain products when considering the European market, but it is not for us or Parliament to take a decision for them. If those sorts of business decisions were to be taken by parliamentary legislation—which is what we are doing now—our nation's economic performance would really be in a pickle.

In any case, it seems to me that the EU is amazingly hypocritical about all this. Who is it that bans all GM products and yet is the second largest importer of GM products in the world? The answer is the EU, which imports 30 million tonnes of GM material every year. It is, of course, quite likely, with the snub of Brexit and the ongoing vexation of the Northern Ireland protocol, that the EU will cut up rough about this. But, as I say, I do not think that we as legislators dealing specifically now with the wording of this Bill should get involved in all that. Leave it to businesses to take their own decisions. It is interesting that Argentina, whose overall national wealth depends hugely on its ability to export agricultural products, has proved willing to adopt this technology. I think that sets us a very good example of how to balance reward versus risk.

If we are going to take a decision to proceed with this legislation, which I hope we are, please allow the many small businesses, which are waiting expectantly for this legislation to pass, to get on with their plans as soon as possible. I say small businesses because, at the moment, only really very big companies can breed seeds and breed different animals because of the time it takes. We are shortening it only by a small amount, so it is the small businesses which will benefit from this legislation. I think we ought to get on with it and not have any more delays.

Baroness Bennett of Manor Castle (GP): My Lords, I have the greatest respect for the noble Lord, Lord Cameron of Dillington, but I think the contribution that the noble Lord has just made demonstrates a fundamental difference in approach to, understanding of and belief in systems for—to use the phrase—feeding the world between him and several of us on this side of the House. I am going to take a very practical example of this because, last week, we saw reports emerge in the mainstream media of a new wheat variety called Jabal. The noble Lord spoke about our scientists finding solutions for Africa, and he spoke about leaving it to business. He said that only big companies could now develop new varieties of crops such as wheat. Jabal, which means mountain in Arabic, is a new durum wheat which is extremely tolerant to drought and heat. It was developed for climate resilience through the Crop Trust's Wild Relatives project. It was developed between 2017 and 2021, so over a period of five years, and by working with farmers on the ground in the communities affected. It is looking to be extremely successful. There is no big business. There are some scientists—I have no doubt that there were some British scientists, but scientists from all round the world were involved in this—but it is grounded in the communities that need these crops and has been done without anyone making huge amounts of money out of it. If we are talking about feeding the world, there is a potential alternative model.

However, I am now going to come back to the detail of these amendments, starting with Amendment 16, already very ably introduced by the noble Baroness, Lady Bakewell of Hardington Mandeville. I do not really think that I need to add much to that, having attached my name to amendment, although I will note that Amendments 76 and 77, both of which appear in my name and which the noble Baroness has also kindly signed, have more or less the same intention of inserting in Clause 43 instead of earlier in the Bill. Amendment 77 looks at impacts on UK exports to the EU, as the earlier amendment did. Amendment 76 is broader and looks at exports around the world and what impacts it might have.

Amendment 78 in my name, which the noble Baronesses, Lady Bakewell and Lady Hayman, have kindly signed, addresses some of the points raised by the noble Lord, Lord Cameron. It says that regulations under this Act must particularly look at the impact on small and medium enterprises. Here, perhaps we are not thinking so much about enterprises that might be producing those so-called precision-bred organisms, but more the farmers using them and small farmers and the kind of impact we were addressing on the debate about intellectual property and the issues of market dynamics and competition which have been such an area of concern with GMOs.

Finally, I come to Amendment 75 in my name; the noble Baroness, Lady Hayman, also kindly signed it. If the noble Baroness, Lady Noakes, were here, she would probably be giving me lessons in the structure of Bills and exactly how a five-year review should be constructed. In her absence, I have done my best to propose that there should be a five-year review of how the Bill is working.

The debate on animals and plants provided some powerful ammunition for the discussion. The Minister acknowledged that the Bill will evolve and change according to events, but we also need to note that this is a fast-moving area of both technology and scientific understanding.

I will not go into great depth on what has been roughly described as the new biology but huge, fundamental debates within the science of biology are going on at the moment about the structure of organisms, of life and of ecosystems. In five years, the scientific framework behind this—not just the technology but scientific understanding—may well have moved on significantly. Surely a Bill this controversial, complex, difficult and technical should have a five-year review built in.

Lord Winston (Lab): I never thought I would be a member of the Green Party, but I clearly am this evening. I must agree with the noble Baroness, because

[LORD WINSTON]
we have to understand that gene editing is a new technique and has been on the books for only about eight or 10 years, which seems a long time but is not at all—in science, that is a very short time.

It was 40 years ago that we genetically modified organisms for the first time. The noble Lord is proposing that we speed this process up when we do not fully understand what is happening with procedures such as CRISPR-Cas9 and other methods. We need much more data before we can be sure about the progeny of these animals. That is one of the problems, and it will not be simple.

Of course, I appreciate that it takes quite a long time to breed an animal. As a human, I understand that quite well—I have dealt with a few humans myself, and no doubt the noble Lord, Lord Cameron, has also had children—but we have to accept that it takes time before you can really work out the status of an animal. It is a complex process.

Baroness Jones of Whitchurch (Lab): My Lords, in one of the earlier debates the Minister sought to categorise some of us as people who are fundamentally opposed to the Bill and trying to find any way we can to derail it. I assure him that I am not in that camp, and I hope that the amendment I will speak to will give some illustration of that.

I will speak to Amendment 88 in my name, which is a very particular amendment about the status of GMOs; this seems a very odd group of amendments that have been put together. It follows on slightly from the comments just made by my noble friend Lord Winston because it recognises that it has been many years since the regulations relating to GMOs have been reviewed. As a result, we appear to be legislating in silos rather than looking at the impact of genetic technology as a whole. We already have the GMO legislation on the statute and now we are looking at GE, but how do those two bits of legislation interrelate?

When the Government announced their plans to roll out gene editing, they also committed to a review of the wider GMO rules, but so far there does not seem to be any sign that the review is taking place—unless I have missed it. Amendment 88 probes whether the impact of Clause 41, which amends the Environmental Protection Act 1990 to exclude precision-bred organisms and differentiates them from GMOs, is likely to require further review.

This is all about the interrelation between genetic engineering and GMOs. Where is that review taking place? Is the wording of the legislation as it stands in Clause 41 how we want it to be? When and how will that wider review of GMOs take place? How will the Minister synchronise any result of that with the provisions of the Bill? It seems rather odd that scientific institutions could be potentially following two different routes for technology that in many ways is very similar.

7.30 pm

I have a great deal of sympathy with the amendments in the names of the noble Baronesses, Lady Bakewell and Lady Bennett. It is important that we take heed of developments in Europe relating to its GMO legislation. It is highly desirable to have a shared definition of precision breeding, because this would strengthen both our research collaboration and trade opportunities with our friends in Europe. I hope that the Minister can say something more constructive about these relationships.

I support Amendment 89 in the name of my noble friend Lady Hayman. It echoes some of the arguments that I supported in the previous debate, and postpones the implementation of the animal clauses until a full set of proposals with proper scrutiny can take place. I hope that the Minister can respond positively.

Baroness Hayman of Ullock (Lab): My Lords, I thank the noble Baroness, Lady Bakewell, for introducing her Amendment 16. As we have heard, there are a few amendments in this group around trade, particularly in relation to the EU and individual member states. Amendment 16 specifically refers to this. It is an important consideration for the Bill and its implications

The noble Baroness, Lady Bennett of Manor Castle, has tabled a number of amendments in this group. I also thank her for her introduction. I have added my name to her Amendments 75 and 78. As Amendment 75 says, it is really important to review the effectiveness and implementation of the Act once it is passed. The Minister has talked about a step-by-step process. I shall come to that as well in my amendment. As I mentioned on the previous group, there are still a lot of unknowns and a lot of SIs to come into play before we know exactly what the legislation will look like. A commitment to a review is pretty important to make sure that everything is happening as the Government intend and to see whether anything needs to be picked up that is perhaps not moving as they would wish. My noble friend Lord Winston made the important point that we need more data on animals. A review would help to look at where we were.

Amendment 78, to which I have also added my name, requires the Secretary of State to have regard to the impact on SMEs, for example. The noble Lord, Lord Cameron, mentioned the importance of supporting small businesses. From reading the Committee evidence in the Commons, I recall that there was quite a lot of debate around the importance of small businesses also being able to benefit from this legislation and not being pushed out by the larger companies. I would be interested to hear from the Minister how the Government intend to ensure that small businesses are allowed to play a full part in any legislation that comes from the Bill when it is enacted.

On a different topic, my noble friend Lady Jones of Whitchurch probed concerning Section 41 in the Environmental Protection Act. Again, this is a really important point. There are different pieces of legislation covering very similar areas. How do they interact? She asked an important question about when the review on wider GMO rules would take place. Once this review has reported, how will the outcomes be managed in relation to the new legislation that is coming forward? Not all legislation sits in its own little place. Lots of legislation interacts, at the Minister well knows. It would be good to know that the Government are looking at this, thinking about it and to know when they were likely to do a review.

I will come on to my Amendment 89 in a minute, as it is a little different. But briefly, on the trade implications which we touched on previously, the Food and Drink Federation has said, for example, that there could be barriers to exporting English farmed food from gene-edited crops. Again, it would be interesting to hear the Minister's thoughts on this. We also talked earlier about what the impact of a difference in definition would be, and that comes into play here as well. At the end of the day, any commercial cultivation of plants or food products that are derived from gene-edited crops will still fall within existing rules. We know that the EU is reviewing where it is, but it is important that we do not end up with negative impacts on our farmers and exporters in food products because we have not thought this through properly.

Perhaps the Government could reassure us that that they are looking at the trade implications and whether they are considering any mitigating factors to ensure that there are no problems. The impact assessment says that it could

"have a relatively significant impact on UK producers"

if there are problems with exporting to the EU, because

"UK crop-related food exporters are heavily dependent on EU consumers' demand".

Again, it is important that we have those assurances. I know that the noble Lord, Lord Krebs, is concerned about the word "risk", but there are risks to exports which the Government need to recognise.

In looking at whether products are going to be accepted, I want to ask about Scotland. I am concerned that the Minister in Scotland said that they would not have any food products forced on them because of easing regulations around gene editing. That concerns me because, if we are not careful, we will have a constitutional flashpoint. Our single market rules say that any produce approved in England is automatically then allowed into Scotland, so what ongoing discussions are the Government having with Scotland on this and what mitigating circumstances can be brought in? That is a worry.

Finally, my Amendment 89, which I have left to the end because it is different from the others, brings me back to where I was on the step-by-step approach. I asked the Minister whether he would consider that; I know he has reassured us, over and again, that precision-breeding technologies will be used first in relation to plants, followed by animals later. But not to put too fine a point on it, we have only his word for that—and while I trust his word, we do not know who the future Ministers or Secretaries of State will be. My amendment makes a suggestion that he could pick up, so that we genuinely would have a step-by-step approach in the Bill. It would be plants first, then farm animals, and then other animals could be looked at. Again, I am only trying to be helpful to the Minister in supporting his step-by-step approach.

Lord Benyon (Con): I appreciate that, as keen as I am to get this right and get something sensible on the statute book. I have a throwaway line before I get into the meat of it. The noble Baroness, Lady Bennett, talked about this being controversial legislation. Actually, in some of the surveys I have seen, a very small number of people are either very opposed or very in favour, and a large number do not know what this is all about. They want to know more, and we have to tell them more. We have to explain it in an unbiased, unpolitical, factual way, and that is what we are seeking to do. In the other place, the Bill passed by a majority way in excess of the Government's majority, and I want to reassure many noble Lords here, so that we can pass it with equal fervour.

Smarting from the earlier comment from the noble Lord, Lord Krebs—

Baroness Bennett of Manor Castle (GP): I think the Minister tried to suggest that the legislation was uncontroversial. We were before discussing the inclusion of animals in the Bill, and 13 of what I think would be universally agreed to be the premier animal welfare organisations in the UK have said animals should not be in it. That surely is controversy from people who are very informed about its nature.

Lord Benyon (Con): I accept the point the noble Baroness makes, and of course, there are others who fervently want measures brought in as quickly as possible that deal with animal disease, animal welfare and those sorts of things.

As the noble Lord, Lord Krebs, quite rightly upbraided me earlier for boring the House, I will try to be as quick as I can, but there is a lot in this section, and I want to be open with the Committee in my comments.

I will respond first to Amendment 16, which would require the Secretary of State to consult, first, representatives of a number of interested groups and then European partners including but not limited to the EU and its member states. This is to agree on a definition of precision breeding and, if a definition is agreed, to amend the definition of a precision-bred organism in the Bill accordingly, using a Henry VIII power. The amendment could be used to change the key concepts that form the basis on which this legislation has been drafted and debated in both Houses of Parliament.

This summer, the EU conducted a consultation in which 80% of participants agreed that the existing provisions of the EU GMO legislation are not adequate for plants produced by certain new genomic techniques, which largely aligns with our view of precision breeding. As I have previously mentioned, the definition of a precision-bred organism in the Bill aims to cover all plants and animals produced by modern biotechnology that could have occurred through traditional processes or natural transformation. This approach to carving out precision-bred plants and animals from GMO legislation is in line with scientific evidence and advice, because it focuses on the end product rather than the technology used to produce it.

Furthermore, we have continuously engaged with national and international stakeholders and regulators to develop a definition that reflects the key principle of this legislation. Our approach is based on the science. With regulations on precision-bred plants and animals changing around the world, we believe the measures in this Bill will facilitate greater trade.

On the topic of trade, I am grateful for the opportunity to discuss how differences in regulation and public perception in other countries will impact on our trade

[Lord Benyon]
with them. Noble Lords have referred to genetically modified organisms in the amendment we are dealing with, and I want to be clear that there is a scientific distinction between GMOs and precision-bred organisms. Many countries recognise this and have changed, or are in the process of changing, their regulations to reflect it. As the international regulatory landscape evolves, our approach could help facilitate greater trade with countries that have already adopted a similar approach to the regulation of precision-bred organisms, with trading partners such as the USA, Canada, Japan and Argentina.

Currently, there are only a few precision-bred products on the market globally, and none of those are traded internationally. Many of them are still in the early development stage, allowing time to monitor and understand the international regulatory framework as it develops. Britain is an exporter of quality products, and one of the reasons for introducing this new, proportionate regulatory approach is to enable the development of more nutritious, higher-quality products that have been grown more sustainably.

Turning to Amendment 77 and the remarks made by the noble Baroness, Lady Bakewell, I would like to outline developments that are likely to change the requirements for companies exporting precision-bred products specifically into the EU; we have been following these developments with interest.

As our legislation on genetically modified organisms mirrors the EU's, it is not surprising that we have the same drivers for change. The timing of the EU's reform plans means that we are unlikely to be able to consider any new EU legislation while we are drafting our regulations under this Bill. However, we will continue to monitor developments closely and work with the EU, and other countries we trade with, to enable innovation and trade. I hope I have reassured noble Lords on this.

7.45 pm

I want to address the point on Scotland made by the noble Baroness. The United Kingdom Internal Market Act 2020 would not prevent the Scottish or Welsh Parliaments and Governments regulating the use of precision-bred ingredients in the production of food in their territories. We are working closely with the devolved Governments; we want to make sure that we are carrying them with us, and we want to try to persuade them to take similar action. Of course, in Scotland, there is the continuity Bill, which seeks to maintain the same regulatory structures as exist in the EU. Now that the EU is moving, no doubt Scotland is looking at it with interest. I know that certain elements of Scotland's coalition might not be so happy about that but it is a conversation that we will continue to have with them; we want to make sure that we continue to allow seamless trade across these islands.

I thank noble Lords for raising in Amendment 78 the issue of enabling small and medium-sized businesses to access precision breeding technologies. Plant and animal breeders and research scientists have told us about the beneficial characteristics locked away in the DNA of plants and animals, which could help us meet some of the major challenges facing us. We have used traditional breeding methods to mine this potential for thousands of years, and now have technologies that can achieve this far more efficiently. It is crucial for businesses of all sizes to access these precision-breeding technologies.

Where countries have taken the same approach to regulating precision-bred products as we intend to do, there is evidence of a democratisation of companies involved compared with those developing GM products. This is a crucial point. Argentina introduced its regulations for precision-bred plants back in 2015; this was followed in 2019 by regulations covering animals. The impacts of these legislative changes have been well studied, and the results published in peer-reviewed papers. They showed that, between 2016 and 2019, 91% of precision-bred organisms used in research and development trials in Argentina were produced by small and medium-sized businesses, compared with less than 10% when GMO legislation applied. This suggests that current GMO regulations disproportionately affect small and medium-sized businesses, which is a likely consequence of their inability to overcome the high regulatory costs. Even then, only a relatively small number of large multinationals are involved in using GM to produce a limited range of traits in major crop species.

This is consistent with what we have heard from our stakeholders—that a proportionate, science-led approach to regulating precision-bred products will encourage innovation in different-sized businesses and a diversification in the traits being investigated. I refer noble Lords to the evidence given by Sam Brooke of the British Society of Plant Breeders at Committee stage in the other place.

There is time for industry to develop these arrangements where they are needed. Many of the products are still in the early development stage and commercial production is several years away. In addition, secondary legislation for which an impact assessment is required by our existing rules, and which is not covered in detail by the impact assessment produced for the Bill, will be assessed separately, as appropriate, before it comes into force. This will include assessing the impacts of the authorisation system that the Food Standards Agency is designing for food and feed derived from precision-bred plants and animals, to be put into place by the Secretary of State under Part 3 of the Bill.

I turn to Amendment 75, which would add a provision in the Bill to require the Secretary of State to review and report to Parliament on whether the primary legislation and its implementation achieves the objectives. There are already provisions for reviewing secondary legislation in UK law, such as the regulations that would be used to implement the Bill. The Small Business, Enterprise and Employment Act 2015 contains a statutory duty for UK Ministers to include in new secondary legislation a review provision that has a regulatory effect on businesses, unless to do so would not be appropriate, and subject to limited exceptions. The purpose of these provisions of the 2015 Act is to strengthen existing arrangements for ensuring that any new regulations affecting businesses are subject to periodic review. Within five years of the secondary legislation becoming effective, the relevant Minister is

obligated to review the legislation and publish a report outlining the conclusions. This provision ensures that the objectives of the legislation have been achieved and regulations remain appropriate and proportionate.

If deemed necessary, regulations can be amended or repealed using existing powers in primary legislation. I assure noble Lords that the Government will monitor and review the impact of the statutory instruments made under the Bill as part of their standard policy-making procedures, and ensure that the provisions are adhered to in line with existing requirements.

I note the points raised by the noble Baroness, Lady Jones, in Amendment 88, and thank her for this propping amendment on whether further changes to the Environmental Protection Act 1990 and the associated Genetically Modified Organisms (Deliberate Release) Regulations 2002 will be required to facilitate the release and marketing of precision-bred plants and animals.

Clause 41 is perhaps one of the most important clauses in the Bill. It ensures that precision-bred organisms will no longer be treated as GMOs under the Environmental Protection Act 1990, in England, but will instead come under the more suitable new regulatory regime set out in and under the Bill. As a result, no further amendments should be needed to the Environmental Protection Act 1990 as a result of the Bill.

However, the noble Baroness is right regarding the Genetically Modified Organisms (Deliberate Release) Regulations 2002, which complement Part 6 of the Environmental Protection Act 1990 to regulate the deliberate release and marketing of genetically modified organisms. They will require consequential amendments to remove precision-bred organisms from their scope, so far as they apply in England, therefore allowing the release and marketing of precision-bred plants and animals in England to be regulated under a new regime set out in and under the Bill.

Finally—I can hear noble Lords' tummies rumbling—I will respond to Amendment 89 from the noble Baroness, Lady Hayman of Ullock. I am grateful to her for the opportunity to lay out the Government's intended step-by-step approach to implementing the new regulatory framework for precision-bred organisms after the Bill receives Royal Assent.

As we have stated, we intend to take steps to facilitate field trials and the commercial use of precision-breeding technologies in relation to plants first, followed by animals later. Our first step was the SI earlier this year to make field trials of qualifying higher plants easier in England. This has already proved to be successful: three research projects have been notified under these regulations, with positive feedback from the research community.

Following Royal Assent to the Bill, as well as commencing its substantive provisions, we will need to lay secondary legislation to put in place the technical details of the necessary regulatory framework required for the Bill to work in practice. As we have stated, we intend to start with the research and marketing of precision-bred plants first.

The secondary legislation will need to follow the standard parliamentary procedures. It is expected that the statutory instruments laying down the technical details of the regulatory framework for precision-bred plants, as well as the substantive provisions of the Bill so far as they relate to precision-bred plants, will be brought into force within the next couple of years.

We will not introduce changes to the regulation of precision-bred animals until the framework to safeguard animal welfare in the Bill is developed and in place. I hear the points of the noble Lord, Lord Cameron, and think that there is an element of urgency here, because the Bill's provisions will help us tackle issues such as our ability to adapt to climate change. I do not agree with noble Lords who constantly say that we are rushing this and that now is not the time, as this can be done many years from now, but we want to move at a pace that noble Lords are comfortable with, and we want to show the wider public that we are regulating in the right way, mindful of concerns in stakeholder groups.

As I made clear in previous debates, this is just the beginning, and we want to make sure that we get it right. Before we create new regulations and guidance for precision-bred animals, we will utilise the outputs of the Scottish colleges research project and work with stakeholders to design the technical requirements for the animal welfare safeguards.

The Bill also allows us to take a step-by-step approach with the commencement of the relevant substantive provisions in relation to certain animal groups or species before others. The timing of this approach will be determined by the period it takes to complete the regulatory process and develop the animal welfare safeguards. These will then need to be reflected in secondary legislation under the Bill's powers setting out the technical details of this process. Additionally, on the basis of promising research on precision-bred crops in the UK—which has already begun—we predict it will be several years before domestically produced precision-bred crops will be on the market for farmers and consumers. Therefore, although there are no dates for these steps in the Bill, there is a clear policy approach for these regulatory changes and for precision-bred products to come to market. I hope my words have provided noble Lords with some reassurance not to press their amendments.

Lord Winston (Lab): I would love to hear from the Minister say "finally" again in just a second. One of the issues I would like him briefly to address—probably in a note, not now—would be how to classify a plant organism, for example, which has been treated not only by gene editing but also by, say, radiation. I mention this is because a recent publication by Amritha and Shah in the last few months shows that, by combining those techniques, the resulting edit is even more successful. It seems that is hardly a natural process, but I do not know whether that is something to discuss now.

The other issue is that we are all obviously agreed about climate change, but what I think concerns a lot of people who are arguing on my side of the Chamber is that modifying plants could make us, the plants or

[Lord Winston]
the land more vulnerable to climate change. That is something we need to be thinking about during the course of the Bill.

Lord Benyon (Con): I take the noble Lord's points. We have to make it clear that we will not allow organisms to come on to the market that would somehow make it harder for us to adapt. There are so many benefits that we can introduce to tackle things such as drought and other issues that plague farmers. We have climate change affecting farmers here and now in this country. It is not something that is happening in Pacific countries alone; it is in our country, and we need to give farmers the tools to deal with it.

On the noble Lord's other point, as the noble Lord, Lord Krebs, said earlier, irradiation—if I have got the word right—is an established part of plant breeding today. He is right. I can see an overlap in this, but I will write to him and make sure that we give him the facts that he needs. With that, I hope that we can progress.

Baroness Bakewell of Hardington Mandeville (LD): My Lords, although I thank the Minister for his response, I am obviously somewhat disappointed by it. I understand the desire of the noble Lord, Lord Cameron, to speed up the process, but I fail to understand how consulting with the EU would affect that. It certainly would delay it a little bit, but not by the years and years that the noble Lord indicated. I believe that a Bill introducing a process which alters the genome of crops and animals ought to have a review every five years. I accept that the Minister feels that there are sufficient reviews in place—I just do not necessarily agree with him.

The Minister spoke about a consultation that took place—he did not say exactly when it was, but I think it might have been last year—and said that 80% of those consulted said that the EU definition of precision engineering was not adequate, and that the end product, rather than the process, was more important. The Minister can write to me, given the hour, but I would like to know who was consulted—who were these 80% of people who said that the EU's process was not fit for purpose? The Minister also said that the UK's regulations mirrored the EU's regulations and monitors; that conflicts with this figure of 80% saying that they were not fit for purpose. For me, it is smaller businesses that benefit most from trade with the EU rather than with Argentina, although I accept that some will trade with the latter.

8 pm

The most worrying thing the Minister said was that everything would be revealed in the impact assessment of the secondary legislation. However, the impact assessment for secondary legislation has a limit of £5 million: if the impact is less than that, no impact assessment is produced. So, if that is the impression the Minister is giving, are we assuming that all the impacts will be worth more than £5 million?

A number of questions have been raised this evening about everything being in the regulatory framework that will come in secondary legislation. I find it extremely disappointing that some of this is not in the Bill, where everybody would have been able to see it and understand what is going on. However, given the hour, I beg leave to withdraw my amendment.

Amendment 16 withdrawn.

Clause 2: Meaning of "plant" and "animal"

Amendment 17 not moved.

Clause 2 agreed.

8.01 pm

Sitting suspended. Committee to begin again not before 8.46 pm.

8.46 pm

Clause 3: Restrictions on release of precision bred organism in England

Amendment 18 not moved.

Amendment 19

Moved by ***Baroness Hayman of Ullock***

19: Clause 3, page 3, line 35, at end insert—

"(c) the organism has been developed for or in connection with one or more of the following purposes—

(i) producing food in a way that protects or enhances a healthy, resilient and biodiverse natural environment;

(ii) growing and managing plants or animals in a way that mitigates or adapts to climate change;

(iii) producing food in a way that prevents, reduces or protects from environmental hazards;

(iv) protecting or improving the health or welfare of animals;

(v) conserving native animals or genetic resources relating to any such animal;

(vi) protecting or improving the health of plants;

(vii) reducing the use of pesticides and artificial fertiliser;

(viii) conserving plants grown or used in carrying on an agricultural, horticultural or forestry activity, their wild relatives, or genetic resources relating to any such plant;

(ix) protecting or improving the quality of soil;

(x) supporting or improving human health and well-being;

(xi) supporting or improving the sustainable use of resources."

Member's explanatory statement

This amendment would require that a precision bred organism has been developed to provide a public benefit, if it is to be released into the environment.

Baroness Hayman of Ullock (Lab): My Lords, my Amendment 19 would require that a precision-bred organism has been developed to provide a public benefit if it is to be released into the environment. The

benefits that are listed in my amendment include, but are not limited to, producing food in a way that protects the natural environment and managing crops or livestock in a manner that mitigates or adapts to climate change. Amendment 21 in this group prevents the release of a precision-bred organism unless its genome has been sequenced and the features that have resulted from the use of modern biotechnology have been recorded. I am looking forward to hearing more about that as well.

Earlier, we talked briefly about climate change and how plants in particular can be adapted to support the future needs that we will have in producing sufficient food. It is important that we find ways to maintain and improve the efficiency, security and safety of our food system while we are developing new legislation and that at the same time we address the environmental and health damage that our modern food system has sometimes created. This Bill gives us an opportunity to look at that and see what we can do to improve those areas alongside the other benefits that people have talked about and to mitigate any adverse impacts that could counteract that.

This Bill presents us the opportunity to create a world-leading regulatory framework that other countries could follow as they develop these kinds of technologies that would provide a clear public good. We recognise that our laws need to be updated to match current scientific understanding. We talked about that earlier in the debate. We want our scientists to succeed, but we also want them to use their skills for good here in the UK. I know that is broad terminology, but I hope noble Lords understand what I mean by this.

To get the legislation right, the Government have to balance certain risks and benefits. We need to have consumer confidence and business confidence; otherwise, all the benefits that could come from the Bill may not happen in the way that we would like. It could mean that we get improvements to environmental sustainability and better food security. A lot of this Bill is obviously around food, but how does it fit in with the much bigger picture that the Government have debated alongside the food strategy, which we all saw—was it last year? I am trying to remember how long ago it was. We talked earlier about different legislations interacting. How will this Bill work with the food strategy? Many of the recommendations were about how our modern food system could be improved and what public benefit could come from the way we farm in future.

The Nuffield Council has made recommendations in its document. One part of that is around aspirations for the UK's future food system—something that is in the minds of a lot of people who have real influence over the way this technology could be looked at and developed in the future. I was also particularly struck by the evidence given to the Commons Public Bill Committee by Bill Angus, who is a wheat consultant. He noted that the motivations behind the work that he does as a wheat breeder and as vice-chair of the International Maize and Wheat Improvement Center in Mexico can be quite different; there are strong passions that drive both ways of working.

We also know that the Crop Science Centre in Cambridge has done interesting work focused on improving the sustainability of our farming systems—in particular, removing the need for inorganic fertilisers. To me, these are the kinds of areas where gene editing could bring significant benefits for the environment, the sustainability of our food systems, and reducing food insecurity across the world. The noble Lord, Lord Cameron, mentioned these issues in his earlier speech.

It is important that we look at how gene editing could be used for good, because we also know that it can be used for ends that, to many of us, would not be so desirable. Evidence from Compassion in World Farming was very interesting in this area. It talked about some of the harms that traditional breeding has caused—I will not go into detail, as we have heard about that today and at Second Reading. It is important that we work for the public benefit and that the Bill is not used to breed animals in a way that would mean they suffer more or be made to tolerate harsher conditions; the Minister mentioned this earlier. It is important that those questions posed in my amendments are taken account of. How can we ensure that the technology is used for good here in the UK?

There is also the question: who decides what that good might be? We will come on to debate that more to some extent in group 8, where we look at the animal welfare tests, for example. There are also questions around the development of herbicide-resistant crops. Do they allow more herbicide to be used? Is that a good thing? There need perhaps to be more tests in the Bill to make sure that some of the roads that we do not want to go down are not roads that we can go down.

My amendment would create a public benefit test before precision-bred organisms could be authorised and released. It is important that the governance is correct to manage that. Professor Sarah Hartley of the University of Exeter said in evidence:

> "The Bill enables science to develop in this area, but it does not enable us to direct the science and technology towards doing any good."—[*Official Report*, Commons, Genetic Technology (Precision Breeding) Bill Committee, 30/6/22; col. 123.]

That is the area that I am trying to look at and ask noble Lords to consider. How would we achieve that? At the moment, it is driven too much by market forces. In making legislation, we have to ensure that we guard against those who are, perhaps, not so interested in the good—the public benefit—that can come out of it but looking just at the market forces. We believe that the Bill could be strengthened through this amendment, and the Government's stated aims, which the Minister has said he wants to achieve, could be encoded within the legislation itself. I beg to move.

Lord Krebs (CB): My Lords, I thank the noble Baroness, Lady Hayman of Ullock, for introducing this amendment so eloquently. I have added my name to it. In fact, I felt that the amendment was almost unnecessary because, earlier this evening, the Minister referred to precision breeding as being used to create public good—I think I am right in saying that. The amendment tries to flesh that out and ask what is meant by "public good".

It goes without saying that one objective of farming is to produce food or other farm products. Precision breeding will be used to increase the efficiency, and

[Lord Krebs]
maybe the productivity, of farming in this country. My noble friend Lord Curry of Kirkharle, who is not in his place, made a useful comment earlier about what is meant by productivity in farming.

It goes without saying that one objective is to increase efficiency and productivity: that is the "more" bit of "more with less". Equally important, and what the amendment is about, is enshrining the "less": less harm to the environment and to people. We have been through many times the kind of harms to the environment that intensive agriculture has delivered, and we hope that precision breeding will be used to reverse those harms rather than augment them.

The noble Baroness, Lady Hayman of Ullock, also raised the important point of how bits of the jigsaw fit together. She referred to Henry Dimbleby's national food strategy. I would be interested in knowing from the Minister whether some of the recommendations that Henry Dimbleby made will be implementable or, indeed, supported by the Bill if it goes through—as I hope it will, possibly with some modifications.

In a way, this is almost uncontroversial. We all accept that there have to be public goods that are supported by precision breeding; that has to be balanced with increasing productivity and efficiency of agriculture; and what we are trying to do here is spell out what those public goods are and should look like. I very much look forward to the Minister's response.

Baroness Parminter (LD): My Lords, I want to say how much I support this amendment, which has been introduced by the noble Baroness, Lady Hayman. I agree with the noble Lord, Lord Krebs, that it was a very eloquent introduction. It should indeed be uncontroversial, for two reasons.

This Government have committed themselves to a number of welcome targets on climate change. We have not quite got there yet on the environmental targets, but the Secretary of State says that we will perhaps have them by next week. We also have the food strategy. If not set targets, we have a clear direction of travel. If the Government are committed to those targets, be it in the social, environmental or climate sphere, then they have to will the means to deliver it. Whether we are talking about a procurement Bill or this Bill, the Government have all these levers to pull to deliver the outcomes.

It would be almost a dereliction of duty not to will the means in a Bill like this to deliver the environmental, climate and food targets which the Government have so welcomely committed themselves to on the record in other places. If the Government were to miss the golden opportunity to embed this commitment to a public benefit in this Bill, I feel it would leave Members around the Committee worried that some of those commitments were perhaps not as deep as we all were hoping.

Moreover, in the way that the Agriculture Act did, there is an opportunity to shape the market by saying that we will rightly give farmers funding to produce the public goods that we want. The mirror approach here is saying that we will provide this new regulatory framework to regulate the benefits and risks of this new procedure. We will allow companies the investment and growth opportunities if it is clear that they are delivering public goods. It is about shaping the market in a way that delivers those public goods.

9 pm

As the noble Lord, Lord Krebs, said, this should be uncontroversial, but it is a really powerful amendment and I applaud the noble Baroness, Lady Hayman, for introducing it. I apologise, because I got up before the noble Lord, Lord Winston, and I do not like to do that, but I am sure that he will introduce his amendment equally well. Having read what he has put down, I entirely support it, as it looks like it follows closely an amendment of mine that we will come to in group 8.

Baroness Jones of Whitchurch (Lab): My Lords, I have added my name to Amendment 19 and I very much support the arguments put forward by my noble friend Lady Hayman. She made a powerful case for why there should be a clear public benefit written into the Bill, which is why her emphasis and the detail in the amendment are important. The noble Lord, Lord Krebs, said that the Minister has already said that he agrees with this. That is fine, but having it written down in the way set out here would be an important addition.

All the examples in the amendment have been cited by Ministers and supporters of the Bill, in various debates, as advantages that could accrue from it. The Minister believes in and is committed to issues such as the environment, climate change mitigation, food safety and animal welfare. As my noble friend said, we have talked many times about the potential to develop a world-class reputation for our science and innovation, and this would be a way of stating, publicly and internationally, what this research is about—so it is not just buried away in *Hansard* but is in a more public domain. That is very important.

As the noble Baroness, Lady Parminter, said, these preconditions very much reflect those that were spelled out in the Agriculture Act. It is not as though it is not legislative practice to have that amount of detail; it is, as it was done in a different Bill. So why can we not have it in this Bill as well? That would have the great advantage of putting the public good at the heart of the Bill.

It would also ensure that public money for gene-editing research, particularly in public institutions—I am involved in one of them—is firmly anchored and focused on the public good benefits. It would give the funding allocation something to measure against, which is an advantage. I am sure that the vast majority of research institutions in the UK would welcome this clarity; it would fit with the ethos of their operations anyway, and, in a sense, play to their strengths. It would be good to have measures in place on how that money is being spent, much as there are for ELMS funding in the Agriculture Act. We wanted to see what we would get for our investment with the farmers, so it was no longer just a free handout.

The noble Baroness, Lady Parminter, made the important point that we need to reassure the public that this is not a backdoor to further environmental

damage and exploitation. We come back to the subject we have already debated, which is how we can make sure that we take the public with us. This is certainly one way we can make sure of that. We have to learn the lessons from the GM crop row of over 30 years ago, when one of the main criticisms was that it would allow the multinational seed companies to exploit farmers in developing countries by locking them into seed contracts in which the seeds could not be naturally regenerated for future use. We need to reassure people that that sort of exploitation is not part of our agenda on this occasion, so it is important to write that public benefit and use into the Bill.

It is important that we provide public reassurance. If it is good enough for the Agriculture Act, why can we not adopt a similar policy here? I urge the Minister to think about this; it would provide a great deal of public reassurance on an issue that we know is still quite sensitive. I hope he feels able, if not in my noble friend's terms then in his own terms, to come back with an amendment that reflects the detail of that amendment.

Baroness Bennett of Manor Castle (GP): My Lords, I shall speak briefly to Amendment 19, which noble Lords will see already has a full complement of signatures. I thought the signature of the noble Lord, Lord Krebs, was far more useful than mine, so I was pleased to leave that space. If the Minister cannot agree to make some commitment such as that which the noble Baroness, Lady Jones, of Whitchurch, just asked for, it might well be possible to find a Conservative Back-Bencher to make a complete set on Report, should we get to that stage. I would have attached my name to this and I think it has already very been powerfully argued for, but I want to make two additional points.

Both the Environment Act and the Agriculture Act were built around the idea of public money for public good. Here, surely the Conservative Government would embrace the idea of public good for no public money at all. This is the Government able to make the rules, and they can ensure that there is public good without a penny having to be spent. That would be very much in line with the Environment Act and the Agriculture Act.

I want to highlight a couple of the elements in Amendment 19 that I think are particularly important, including sub-paragraph (x),

"supporting or improving human health and well-being".

I note that the Government, in promoting the Bill, talk a great deal about sugar beet. Given the massive overconsumption of sugar in the UK diet—if we produced by volume only two-thirds of the sugar we produce in the UK, that would be more than enough for a sufficient, healthy level of diet without importing a single gram of sugar—and the fact that sugar beet is associated with massive loss of fertile topsoil from some of the richest lands in the UK, if we could gene-edit sugar beet to be more productive on less land, it would be ideal to combine that with ensuring that we produce only a healthy amount of sugar and free up the land for other purposes.

I also note that the Minister talked about sub-paragraph (ii), mitigating and adapting to climate change—indeed, he talked about the climate emergency quite a lot this afternoon. Of course, when we are talking about animals, we talk about engineering cattle to release less methane; we are looking at a whole-systems approach here, and having fewer cattle would be by far the easiest way to produce less methane. Further, they would not be consuming grains and proteins, such as soya from the Amazon, which we could be consuming as human food instead. It is a complex issue, but what we are getting at here is trying to deliver, as the noble Lord, Lord Krebs, said, what the Minister said is the purpose of the Bill.

The noble Lord, Lord Winston, has not spoken yet, but I will venture to make one comment on his Amendment 21. The wording is not terribly clear, and the noble Lord could answer now or later, or think about this amendment on Report. It says that the genome should be sequenced and the changes recorded and reported to the Secretary of State. My question is whether that should be published and publicly available. We are talking about licensing something that the Government are giving companies the right and the chance to potentially make money out of, so it is perfectly reasonable to demand an increase in public knowledge to make accessible those genomes that would then be available to other researchers for all kinds of possibly very different purposes, not necessarily productivity or seed-producing purposes. The knowledge of all those genome sequences would be a very useful thing. I think that should perhaps be written into the amendment.

Lord Winston (Lab): Seeing as my name has been mentioned, perhaps I ought to speak. I thought we were still on the two previous amendments. The difficulty I have with this is that Amendment 21 is really a continuation of Amendment 20, and Amendments 22 and 23 follow logically.

Let me just deal very quickly with this. Basically, what we are talking about here is the release of organisms into the environment, and the proof that we have done to those organisms what we what we said we were going to do. Of course, that particularly means looking at the phenotype of the animal, whether it is a normal animal and therefore not suffering in any kind of way, and at whether the editing has changed the genome in a way that is unexpected. Of course, the Minister mentioned off-target mutations, but that is only one thing that can occur with gene editing. Once the DNA is on a double-stranded split and there is a gap there, you can actually introduce foreign DNA—even human DNA; whatever is floating around in the laboratory. When we are doing very careful work in the lab with genetic material, we have to be scrupulously clean of the flow hoods and so on. Those things need to be considered, because they would be part of what is seemingly a simple procedure, but in reality there are really quite difficult safeguards. What I am really asking is whether the Government intend that there be some form of sequencing to see whether there have been mistakes, or some form of examining the genome of the animals after we have done the work required.

To my mind, there are two issues here. One, of course, is the need to get better data on the effect of the gene editing, wherever it is done, and, in particular,

[Lord Winston]
of gene editing in general. That will help the research. If we really want to promote a market, we need to show that we are what we promised to be: a leading scientific organisation in this country, doing this sort of stuff at the top level. That is important. The other issue, of course, is protecting the environment. Clearly, release of organisms that turn out to be not what we expect, and which would have the ability to produce progeny, is risking things further. That is basically the reason for all these amendments, but Amendment 21 expresses my main concern: to ensure that we have done what we promised to do, and if we have not, to find what went wrong so that we can deal with it.

The primary question of privacy of the information has to be discussed by us, but it is deliberately not in this amendment at the moment. There are pros and cons for doing that. There does not necessarily have to be openness, but there must be a proper register of the information. We may well not get the work done if we do not have complete confidentiality, although science is never done best when it is confidential. On the whole, openness has been described, in the general information about the Bill, to be an issue in it, and transparency is a word mentioned by the Government. In the interest of transparency, this amendment may be required.

Lord Sentamu (CB): My Lords, when I practised law before I started practising law and grace together, I was of the view that any lawyer enshrines into legislation an agreed public policy. Here, the public policy in Amendment 19 to Clause 3 is that really, if you are to develop these organisms, they must be

"for or in connection with one or more of the following purposes".

The purposes are explained. The Minister has to work out clearly what the public policy is that he is trying to enshrine here, because any general knows that it is no good launching out into a battle when there are no soldiers coming behind you. One of those purposes here is to try to help the public to understand why this is being done. It is not just for money—although that, of course, is important—and it is not just because we think that science has developed and there is no control over it. At the end of the day, it is about the fact that we want to get our purposes to work out and progress. I hope that the Minister will see this as helpful in stating what the public policy is, why this is being done, and what areas may in future be brought into being.

Of course, I regret that the noble Duke, the Duke of Montrose, was stuck in Scotland and therefore could not be here, because, under Clause 3, if all those things that are supposed not to be let out are let out, what will be the sanction?

9.15 pm

Lord Benyon (Con): My Lords, I am grateful for Amendment 19, which raises the importance of ensuring that what we do has a public benefit. Across government we are undertaking a range of what I believe is really exciting work to deliver public good and we want to see precision-breeding technologies complement this work to improve our food system and the environment.

On my phone I keep some crucial lines from the Agriculture Act, because when I meet farmers and they say that this Government no longer mind about food production I remind them that right at the front of the Agriculture Act, in Clause 1, it says:

"In framing any financial assistance scheme, the Secretary of State must have regard to the need to encourage the production of food by producers in England and its production by them in an environmentally sustainable way."

That is a declaratory statement right at the front of the Act. What we are seeking to do in terms of environmental land management goes through the heart of that piece of legislation and this piece of legislation fits very firmly within that.

As noble Lords are aware, the UK is privileged in its scientific position and researchers across the country are already delivering exciting research that contributes towards public good in the field of precision breeding. In the other place, the John Innes Centre gave evidence about the vitamin D tomatoes that its research group is developing, striving towards improving the food we eat for the benefit of our health. Another notable example is from researchers at Rothamsted who are exploring ways to increase the lipid content of grasses. This could help improve the quality of animal feed and has the potential to reduce methane emissions in livestock. I think we are all proud of the work taking place in this country and I am sure that the noble Baroness, Lady Jones, is particularly proud of Rothamsted.

This amendment, I fear, might hinder the important research in this area by placing restrictions on and creating significant uncertainty for critical field trials for researchers and breeders attempting to make new varieties of precision-bred crops. While I understand the intention of this amendment—and it is an intention I applaud—it would not be appropriate to restrict technologies used in breeding, nor do we have any evidence that suggests developers are doing anything other than creating better and improved varieties or breeds.

Of course, it is important to note that these technologies are not a silver bullet, and we want them to be part of our innovation toolkit to improve our food system. Delivering public good is what I did say earlier, and I am very glad I did—and it has been underlined by other noble Lords. It is what we strive for across government and we are fully committed to developing a more sustainable, resilient and productive food system.

Noble Lords quite rightly referenced the Government's food strategy and, building on Henry Dimbleby's extraordinary, in-depth piece of work, we have set out a plan to transform our food system and ensure that it is fit for the future. The noble Baroness, Lady Bennett, mentioned sugar beet. This is a crop where there is an application which might be of huge benefit, and not just in terms of the food that we produce. Being able to develop a strain resistant to virus yellows would mean that we would not have to seek noble Lords' permission through secondary legislation for a derogation to allow the use of neonicotinoids to control virus yellows. More importantly, we could have a crop that was not only able to produce more sugar for our producers here but would require us to import less sugar from abroad, thereby lowering the carbon impact of that crop.

There are counterfactuals in everything. Trying to improve the home-grown element of our food, while reducing the impact that failing to produce it at home would create by having to import that food, sometimes from far away, needs to be factored in. It is fundamental to our food strategy.

I thank the noble Lord, Lord Winston, for his Amendment 21, which would require the genomes of precision-bred organisms to be sequenced before they can be released into the environment, regardless of whether or not an organism with the same genetic changes had previously been assessed and classified as precision bred. It also stipulates that the genomic changes resulting from the use of modern biotechnology have to be recorded, that no unprecedented changes can be present in the plant or animal, and that this must be reported to the Secretary of State.

I assure noble Lords that the criteria for defining a precision-bred organism, as set out in Clause 1, consider both intended and unintended changes to the genome. This means that any changes resulting from the use of modern biotechnology, whether intended or unintended, must be able to occur through traditional breeding or natural transformation for a plant or animal to be considered precision bred. It also means that unintended changes will already need to be assessed as meeting these criteria before any precision-bred organism is released.

The noble Lord's amendment would mean that plants and animals could not be classed as precision bred if they contain unintended genomic changes. Unintended genetic changes occur during the traditional breeding process. Some of these may be removed during that process and others not, as will be the case with precision-bred organisms. As I expect the noble Lord is aware, many recent gene-editing studies about animals have reported no incidences of unintended genomic changes when using CRISPR-Cas9. Having assessed this evidence our expert advisory committee, ACRE, has also advised that unintended genomic changes occur significantly more often during the course of traditional breeding than they do as a result of precision breeding. This is also the view of the European Food Safety Authority, which advises the EU. Consequently, while we expect developers to ensure that any unintended changes are within the range of what can occur naturally, the scientific advice we have received suggests that it is not appropriate to prevent plants or animals with unintended genetic changes from being classed as precision-bred organisms.

We are committed to taking a proportionate approach, requiring only the information that fulfils the regulatory requirement at the appropriate time. It is for this reason that the Bill distinguishes between requirements for research trials and marketing applications of precision-bred organisms. This amendment is likely to add regulatory burden, without adding value to the process. For example, developers would be required to submit a release notice to Defra, confirming that the founder organism they intend to release for research trials meets the criteria in the Bill. They would have generated genomic data to confirm that this is the case.

However, requiring whole-genome sequencing would be disproportionate, given the specific, targeted nature of changes being made. I assure the noble Lord that breeders who release an organism modified using modern biotechnology that does not meet the criteria outlined would be subjected to sanctions under existing GMO legislation. This is a strong deterrent against releasing organisms that do not qualify as precision bred. That also goes some way to answering the point that the noble and right reverend Lord tried to pick up from the previous group, which was not moved. However, we are clear about the sanctions that we want implemented.

Developers will have to submit an additional notification to Defra should they wish to market their precision-bred organism. Breeders will need to provide fit-for-purpose information to demonstrate that they have met the requirements that I have outlined. The technical details will be developed with the advisory committee appointed to advise the Secretary of State on the regulatory status of these organisms.

For marketing approvals, assessments will be carried out on a case-by-case basis. The full genomic sequence of an organism may not be required in addition to information on intended and unintended genomic changes to determine similarity to traditional breeding or natural transformation. As a result, we do not feel it necessary to include a provision that specifically requires whole-genome sequencing.

Finally, to address the noble Lord's point that the DNA of all progeny of a precision-bred organism should be sequenced before release, if a "founder" organism has met the criteria laid out in the Bill—specifically, that the genetic changes made by modern biotechnology are stable and could have arisen naturally or through traditional breeding—we have been advised that the regulatory status of its progeny does not have to be assessed. This is because the changes made are stable and in line with those that occur naturally.

To address the noble and right reverend Lord's point about this being a public good, I hope I have set out why the Bill fits in with the Government's food strategy and how environmental sustainability will be enhanced by it if we get it right. Perhaps the greatest public good will be if we are able to adapt to and tackle elements of climate change that affect not just these islands but countries all around the world. It could benefit some very challenged environments, so we owe it to them to make sure that we are regulating this correctly, making it accessible not just to large multinational companies but to smaller businesses and—to use the rather pompous word I used earlier—democratising it, ensuring that its benefits can be felt far and wide. I hope this provides the assurance that noble Lords need not to press their amendments.

Lord Krebs (CB): I thank the Minister, but I have one question of clarification, just to check that I have understood what he said—namely, while accepting that it is important that public goods are delivered by precision breeding, that it would in some way stifle innovation if one defined too precisely what one meant by "public goods". Can the Minister give an example of where saying what one means stifles innovation?

Lord Benyon (Con): Whether I can give the noble Lord an example or not, I do not know, but he is absolutely right. That is why crafting this legislation has been such a monumental task. MPs in the other place and noble Lords in this place very often—and quite rightly—want to see as much as possible on the face of a Bill, because it holds current and future Governments to account. Very often, not having things on the face of a Bill can be exploited. However, putting too much on the face of this Bill, or being too prescriptive, could create a feeding frenzy for lawyers, be a burden on producers and have a stifling effect on innovation. I hope noble Lords will feel that we have got the balance right and are allowing enough flexibility.

I can see that there are elements of the regulatory framework that support this legislation that are yet to be developed in detail. I am very happy to give noble Lords as much information as I can on the process of developing that, not just now but, for example, as we get information from the Scottish colleges that will inform us on some aspects of the Bill, including this one. That will give the wider consumer and the concerned individual the information they need to know that we are being proportionate and are very focused on this key point of trying to make sure that we are providing a public good.

9.30 pm

Lord Winston (Lab): That was a very complicated statement. I think the noble Lord, Lord Krebs, had a bit of difficulty with it, and so did I, so I shall read it with great interest in *Hansard*. Perhaps we can discuss one or two issues that the Minister raised. I think he said, though maybe I misheard, that there have been no recorded changes in the genome or in the DNA of animals that have been modified using the CRISPR technology, for example. I should like to get back to the noble Lord in order to share with him my understanding and to present him with some reports from the literature which argues that this actually has happened and that the introduction of stray DNA, as well as off-target mutation, is a real issue. But now is not the time to discuss this. We shall probably have to leave it until Report.

I am sure that we are basically working towards the same thing. However, it seems to me that, if you own a picture—a Rembrandt, for example—you do not automatically sell it as a Rembrandt; you sell it for what you think it is worth, or what its provenance is. So the provenance of what we sell in terms of our animals to other people is just as important. It is part of a proper sale. If in fact it depends on the genome and the nature of the genes—whether they are expressing or not expressing, and whether the progeny is normal—that, I would argue, is important to the person who is going to buy it. It is essential that we try to be honest, open and transparent.

Lord Benyon (Con): That is absolutely right. I would just say to the noble Lord that ACRE assessed the evidence put to it by the scientific community. I repeat what I said. Many recent gene-editing studies on animals have reported no incidences of unintended genomic changes when using CRISPR-Cas9. If the noble Lord has information that ACRE should be considering in relation to this, I would be very happy to connect him with ACRE. But that is also the same scientific opinion that was reached by the European Food Safety Authority, which advises the EU Commission. But the noble Lord is absolutely right that the science on this is moving. There are advances being made, not just here but internationally as well, and we must have the best possible advice to allow Ministers to take the best possible decisions.

Baroness Hayman of Ullock (Lab): My Lords, I thank my noble friend Lord Winston for his amendment and for the discussion, but I do not feel qualified to comment on it any further than that. We are having an important debate in these areas, and his knowledge is really helpful and useful as we continue to debate the Bill.

On my Amendment 19, I thank all noble Lords for their support, particularly my noble friend Lady Jones of Whitchurch, the noble Baroness, Lady Parminter, and the noble Lord, Lord Krebs, for adding their names to it and supporting me strongly on this—I appreciate it. I am sure that noble Lords and the Minister will not be surprised that I am extremely disappointed in his response. As the noble Baroness, Lady Parminter, and my noble friend Lady Jones said, the amendment fits so well with the Agriculture Act and, as the Minister himself said, with what the Government are trying to achieve through the food strategy. I genuinely do not understand why it cannot be part of the Bill. The Minister said that the amendment was too restrictive, and the noble Lord, Lord Krebs, raised a question about this and asked for an example, which I am not sure we got. I ask the Minister again: how is it too restrictive?

I am not sure whether all noble Lords have seen the amendment, but it lists 11 different purposes—I tried to keep it broad. One of the 11 is

"protecting or improving the health of plants",

and another is

"protecting or improving the health or welfare of animals".

My amendment says that it has to be only "in connection with one" of the 11. In discussing the animal part of the Bill, everyone said the reason for having it is to improve health and welfare; I do not see how the amendment would not fit in with this. The same is true of some of the other areas around plants. I genuinely do not understand why it is too restrictive, and I would appreciate it if the Minister could perhaps think about that before Report, because we will come back to this.

Earlier, I said that, when making legislation, we have to ensure that, as well as welcoming those who are undoubtedly trying to do good, we must guard against those who are not. I think the Minister is looking through rather rose-tinted spectacles. On that note, I beg leave to withdraw the amendment.

Amendment 19 withdrawn.

House resumed.

House adjourned at 9.37 pm.

Grand Committee

Monday 12 December 2022

Arrangement of Business

Announcement

3.45 pm

The Deputy Chairman of Committees (Lord Young of Cookham) (Con): My Lords, if there is a Division in the Chamber while we are sitting, this Committee will adjourn as soon as the Division Bells are rung and resume after 10 minutes.

Energy Bill [HL]

Committee (3rd Day)

3.45 pm

Clause 84: Application of Part 4 of Petroleum Act 1998 in relation to carbon storage installations

Amendment 90

Moved by ***Lord Callanan***

90: Clause 84, page 75, line 30, leave out "and legacy"

Member's explanatory statement

This amendment and the amendment in the name of Lord Callanan at page 75, line 31 are consequential on the amendment in the name of Lord Callanan at page 71, line 34.

The Parliamentary Under-Secretary of State, Department for Business, Energy and Industrial Strategy (Lord Callanan) (Con): My Lords, it is a great pleasure to be back in Committee once again, debating the Energy Bill. I thank noble Lords for their patience during the interregnum. Noble Lords will recall that the Bill was necessarily paused following the death of Her Majesty the Queen. However, we have always been clear that the Bill represents a landmark piece of legislation to provide for a cleaner, more affordable and more secure energy system that is fit for the future, so I am very happy to be debating it again.

Clause 84 makes changes to Section 30 of the Energy Act 2008, which in turn enables modifications to Part IV of the Petroleum Act 1998. Amendments 90 and 91 make consequential changes to definitions in Clause 84 in response to government Amendment 70.

The next set of amendments relate to Clause 85. Amendments 92, 93, 101 and 102 update the heading, labels and definitions in Section 30A of the Energy Act 2008, as amended by this Bill, to avoid inconsistencies with existing definitions in the 2008 Act. Amendment 103 makes a consequential change due to the changes in definitions.

Moving to Amendments 94 and 95, the existing Section 30A of the Energy Act 2008 includes a carve-out in subsections (2) and (3). This prevents the Secretary of State designating an installation as eligible for change of use relief if it is to be used as part of a CCUS project that is in Scotland or is licensed by Scottish Ministers. However, the Scottish Parliament is also unable to legislate to confer such a designation power on Scottish Ministers because oil and gas is a reserved matter. It is important that change of use relief is available to oil and gas assets in Scottish territorial waters to create a consistent application of this policy. Amendment 94 removes this carve-out from Section 30A of the Energy Act 2008. Amendment 95 then updates a cross reference as a result of the proposed Amendment 94.

The process for issuing change of use relief first requires that an asset is designated as eligible. Only after this can the asset then qualify for that relief. Amendment 97 makes clear what conditions must be satisfied for an installation already designated as eligible for change of use relief by the Secretary of State actually to qualify for that relief. The first condition is that the Secretary of State has issued a carbon capture and storage-related abandonment notice under Section 29 of the Petroleum Act 1998 on a person for that installation. The second is that the trigger event has been satisfied.

Amendment 98 describes the trigger event that must occur for the relief to take effect. The trigger event requires that, first, a decommissioning fund must have been established for the relevant asset. Secondly, an appropriate amount must have been paid into this fund to reflect the decommissioning liability that the previous owner is being relieved of. This amendment would also give the Secretary of State power to make regulations on the required amount that must be paid into the decommissioning fund, and who may make such a payment, to qualify for change of use relief.

The Secretary of State must also approve that the amount paid into the fund is sufficient. Amendment 96 imposes a requirement on the Secretary of State to consult the Oil and Gas Authority before certifying that the amount is sufficient. Amendment 104 makes consequential changes to defined terms in Clause 85 as a result of Amendment 97.

I now turn to the other amendments tabled by noble Lords in this group. Amendments 99 and 100, tabled by the noble Baroness, Lady Liddell and the noble Lord, Lord Foulkes, seek to enable the Secretary of State to accept financial security from the previous owner, rather than requiring the amount to be paid in cash into the decommissioning fund. The Government acknowledge the point made by noble Lords regarding the value-for-money considerations when requesting funds to be set aside for decommissioning. The costs of decommissioning a repurposed asset are likely to be incurred at the end of the carbon storage asset's life, which may be many years after the establishment of the decommissioning fund. However, the purpose of this trigger event for the issuance of change of use relief is to help protect the taxpayer from the decommissioning liability by having funds available to decommission repurposed assets. The requirement for a cash deposit looks to ensure that funds are available should the carbon storage asset close early and decommissioning of the existing infrastructure is required. This reduces the risk that the burden of decommissioning is left completely to the taxpayer. It is also intended that decommissioning funds will be invested to allow the fund to retain its value over time until decommissioning is required. This is another reason why it is important for the previous oil and gas owner to contribute money into the decommissioning fund.

[Lord Callanan]

More generally, the policy intent of change of use relief is to provide previous oil and gas owners with greater certainty over their liabilities, to incentivise the repurposing of assets. In return, however, the taxpayer should equally expect assurance that the oil and gas owners' liability will be met, in accordance with the obligations that the owners agreed to undertake on commencement of their oil and gas activities. The Government judge that this can be provided only through a cash deposit, and not through a promise of funding, potentially decades into the future. This is the principle on which the policy was proposed in the Government's consultation in August 2021 and with which, at the time, respondents broadly agreed. Therefore, I beg to move the amendment in my name and ask the noble Baroness, Lady Liddell and the noble Lord, Lord Foulkes, not to move their amendments.

Lord Teverson (LD): My Lords, I welcome the Bill's return to Committee; I am very pleased that that is the case. I have no comments to make on the amendments, but I note that during that interregnum, as the Minister described it, the Government gave planning permission for a coal mine. Although we are not going to debate it here today, that is a hugely retrograde decision which flies in the face of the Bill and the general way in which it looks forward. However, I have no comments on the amendments that the Minister has tabled.

Lord Lennie (Lab): My Lords, I am also delighted to be debating the Energy Bill again. I am delighted that the noble Lord is still the Minister so that we at least have continuity on the Bill; it remains much the same as it was before we left it some three months ago.

As the Minister said, the amendments refer to Clauses 84 and 85 of Chapter 2 of Part 2 on "Decommissioning of carbon storage installations". This gives the Secretary of State a power to make regulations regarding the financing and provision of security for decommissioning and legacy costs associated with carbon capture utilisation and storage. The decommissioning of offshore installations and pipelines used for carbon dioxide storage purposes is modified by Section 30 of the Energy Act 2008, which modified Part 4 of the Petroleum Act. Clause 84 enables further modifications to the modified Part 4 in relation to the definition of carbon storage installation, and the establishment of decommissioning funds and legacy costs as set out in Clause 82, "Financing of costs of decommissioning etc".

Clause 85 relates to Sections 30A and 30B of the Energy Act 2008, which make provision for a person to qualify for change of use relief on installations and submarine pipelines converted for CCS demonstration projects—as defined by Energy Act 2010. This relief removes the ability for the Secretary of State, in some circumstances, to take steps under the modified Part 4. This clause makes amendments to Section 30A of the Energy Act 2008 by broadening the scope of change of use relief so that it applies to eligible carbon storage installations more generally, amending the trigger point to qualify for such relief.

Amendments 99 and 100, which the Minister referred to, were tabled by my noble friend Lady Liddell, who unfortunately cannot be here and therefore will not be able to move them. They reflect value-for-money considerations in the decision-making process, meaning that the Secretary of State could accept provision of security in respect of amounts to be contributed on account of decommissioning costs—costs likely to be incurred, as the Minister said, many years after the establishment of the fund—rather than requiring such amounts to be paid simply in cash.

Lord Callanan (Con): I thank the noble Lord, Lord Teverson, and the noble Lord, Lord Lennie, for their comments, but I do not think there were any points for me to address, so I will leave it there.

Amendment 90 agreed.

Amendment 91

Moved by ***Lord Callanan***

91: Clause 84, page 75, line 31, leave out "82(5)" and insert "82(4)"

Member's explanatory statement

See the explanatory statement for the amendment in the name of Lord Callanan at page 75, line 30.

Amendment 91 agreed.

Clause 84, as amended, agreed.

Clause 85: Change of use relief: installations

Amendments 92 to 97

Moved by ***Lord Callanan***

92: Clause 85, page 75, line 36, leave out "carbon storage" and insert "certain"

Member's explanatory statement

See the amendment in the name of Lord Callanan at page 76, line 1.

93: Clause 85, page 76, line 1, leave out subsection (3)

Member's explanatory statement

This amendment and amendments in the name of Lord Callanan at page 75, line 36, page 76, line 33, and page 77, line 9, revert to the label "eligible CCS installation" for certain installations that are eligible for change of use relief.

94: Clause 85, page 76, line 4, leave out subsections (5) and (6) and insert—

"(5) Omit subsections (2) and (3)."

Member's explanatory statement

This amendment removes a restriction on change of use relief relating to certain installations whose licence was granted by the Scottish Ministers etc.

95: Clause 85, page 76, line 7, leave out "After subsection (3)" and insert "Before subsection (4)"

Member's explanatory statement

This amendment is consequential on amendment in the name of Lord Callanan at page 76, line 4.

96: Clause 85, page 76, line 9, at end insert—

"(b) whether to make a certification under subsection (5)(b).""

Member's explanatory statement

This amendment requires the Secretary of State to consult with the Oil and Gas Authority before making a certification of the kind mentioned in amendment in the name of Lord Callanan at page 76, line 33.

97: Clause 85, page 76, line 10, leave out subsections (8) and (9) and insert—

"(8) For subsection (4) substitute—

"(4) An eligible CCS installation qualifies for change of use relief if—

(a) the Secretary of State has given a CCS-related abandonment programme notice to a person in relation to the abandonment of the installation, and

(b) the trigger event has occurred in relation to the installation.

(4A) In subsection (4) "CCS-related abandonment programme notice" means an abandonment programme notice given under section 29 of the 1998 Act in that section's application in relation to carbon storage installations (by virtue of section 30 of this Act).""

Member's explanatory statement

This amendment changes the conditions for change of use relief under section 30A of the Energy Act 2008.

Amendments 92 to 97 agreed.

The Deputy Chairman of Committees (Lord Young of Cookham) (Con): My Lords, I must inform the Committee that if Amendment 98 is agreed to, I will be unable to call Amendments 99 or 100 by reason of pre-emption.

Amendment 98

Moved by ***Lord Callanan***

98: Clause 85, page 76, line 33, leave out from beginning to end of line 7 on page 77 and insert—

"(5) The trigger event occurs in relation to an eligible CCS installation when—

(a) a decommissioning fund (as defined in section 82(6)) has been established for providing security for the discharge of liabilities in respect of decommissioning costs in relation to the installation, and

(b) the Secretary of State certifies by notice in writing (an "approval notice") that one or more relevant persons have paid into the fund an amount or amounts the total of which is not less than the required amount.

(5A) In subsection (5)—

(a) "relevant person" means a person of a description specified in regulations made by the Secretary of State;

(b) "the required amount" means an amount determined by the Secretary of State in accordance with regulations made by the Secretary of State."

Member's explanatory statement

This amendment amends the conditions for qualifying for change of use relief under section 30A of the Energy Act 2008.

Amendment 98 agreed.

Amendments 99 and 100 not moved.

Amendments 101 to 104

Moved by ***Lord Callanan***

101: Clause 85, page 77, line 9, leave out "carbon storage" and insert "CCS"

Member's explanatory statement

See amendment in the name of Lord Callanan at page 76, line 1.

102: Clause 85, page 77, leave out lines 27 and 28

Member's explanatory statement

This amendment leaves out an unnecessary definition.

103: Clause 85, page 77, line 29, leave out "and legacy"

Member's explanatory statement

This amendment is consequential on amendment in the name of Lord Callanan at page 71, line 34.

104: Clause 85, page 77, leave out lines 31 to 35

Member's explanatory statement

This amendment omits definitions in consequence of the amendment in the name of Lord Callanan at page 76, line 10.

Amendments 101 to 104 agreed.

Clause 85, as amended, agreed.

Clause 86: Change of use relief: carbon storage network pipelines

Amendment 105

Moved by ***Baroness Bloomfield of Hinton Waldrist***

105: Clause 86, page 78, line 12, at end insert—

"(b) whether to make a certification under subsection (3)(b)."

Member's explanatory statement

This amendment requires the Secretary of State to consult with the Oil and Gas Authority before making a certification of the kind mentioned in Lord Callanan's amendment at line 78, line 37.

Baroness Bloomfield of Hinton Waldrist (Con): My Lords, Amendments 105 to 109 amend Clause 86 on the availability of change of use relief for pipelines. Clause 86 mirrors Clause 85, the principal difference being that its application is to pipelines rather than to installations. As such, these amendments also mirror those covered in the previous group.

As was the case for Amendment 97, Amendment 106 makes clear what conditions must be satisfied for a pipeline that has already been designated as eligible for change of use relief by the Secretary of State to qualify for change of use relief. To recap, the first is that the Secretary of State has issued a carbon capture and storage-related abandonment notice, under Section 29 of the Petroleum Act 1998, on a person for that pipeline. The second is that the trigger event has been satisfied.

Amendment 107 describes the trigger event that must occur for the relief to take effect, in the same way as Amendment 98 did for Clause 85. First, a decommissioning fund must have been established for the relevant asset. Secondly, an appropriate amount must have been paid into this fund to reflect the decommissioning liability that the previous owner is being relieved of. The amendment would also give the Secretary of State a power to make regulations on the required amount that must be paid into the decommissioning fund, and who may make such a payment, in order to qualify for change of use relief.

As was the case for Clause 85, the Secretary of State must also approve that the amount being paid into the fund in relation to pipelines is sufficient. In the same way as Amendment 96 does, Amendment 105 imposes a requirement on the Secretary of State to consult the Oil and Gas Authority before certifying that the amount is sufficient.

[Baroness Bloomfield of Hinton Waldrist]

Amendments 108 and 109 make consequential changes to definitions and cross-references in response to previously proposed amendments.

Amendments 110 and 111 make changes to Clause 87. Amendment 110 updates the heading to reflect better the content of that section. Amendment 111 proposes to omit a subsection of Section 105 of the Energy Act 2008. This subsection is no longer necessary as a result of the simplified mechanism proposed in this Bill for designating an asset as eligible for change of use relief.

The repurposing of pipelines, alongside installations, has the potential to deliver great benefits in the deployment of carbon capture, usage and storage. These can be environmental through greater resource efficiency and the reduction in disturbing sea beds. There are also economic benefits in reducing capital expenditure and potentially speeding up the deployment of CCUS.

4 pm

The oil and gas sector has made clear that change of use relief is critical to incentivising the repurposing of assets. CCUS is a new sector, and there are increased uncertainties relating to the decommissioning of these networks compared with oil and gas projects. However, the taxpayer should not be disadvantaged through this policy. The conditionality set out in the issuance of the relief ensures that oil and gas owners fulfil their obligations and that CCUS is not used as means of avoiding existing liabilities. As set out in the Government's 2021 consultation, this ensures that the polluter pays principle is met and the right balance is struck between industry's desire for certainty and mitigation of risk to the taxpayer.

I beg to move these amendments tabled in the name of my noble friend Lord Callanan.

Lord Teverson (LD): My Lords, I really have just one question for the Minister, and it is on decommissioning funds. It is not clear to me—that may be because I have not gone through the absolute intricacies of all these lines—who actually holds the funds for the decommissioning fund. Are they banked, are they in the Treasury, or are they in the Oil and Gas Authority? What guarantee do we have that they are there when needed and that they are not just used by the Treasury but are part of offsetting the public sector borrowing requirement? I am very keen to understand whether that is similar to the nuclear decommissioning sector, and where that happens.

I turn to the amendments from the noble Lord, Lord Lennie. He has not spoken to them yet. I suspect that the Government might accept—

A noble Lord: They are all government amendments.

Lord Teverson (LD): Forgive me. I am looking at a slightly out-of-date document. Anyway, that is the area that I would be interested to understand from the Minister. We will come to other amendments another time.

Baroness Blake of Leeds (Lab): I too welcome the return of the Bill. It is quite interesting to reflect back to the first and second days in Committee, when we were recording the hottest temperatures that we had ever experienced in this country and were making full use of that experience. We were also in the midst of the leadership contest and questioning the commitment of the candidates; we had no way of knowing, of course, that both of them would take their turn in No. 10 and have the ability to demonstrate their commitment.

We are really pleased to see the return of the Bill. We were concerned that there would be changes and, as we said on the first two days in Committee, there are some measures in this Bill that are urgent and that we need to get a move on with in order to address the challenges that we face in this space.

I do not have an enormous amount to add to the Minister's very full comments. I just seek clarification. When I see an amendment on consultation, I am always slightly concerned to know who exactly would come into the sphere of consultation and make sure that it is as full as it could be. The issues around making sure that the fund remains sufficient are very practical and necessary. With that plea for clarification on consultation, I am happy to leave it there.

Baroness Bloomfield of Hinton Waldrist (Con): I thank the noble Lord, Lord Teverson, and the noble Baroness, Lady Blake, for their remarks. I will start with the noble Baroness's final question. As set out in the Government's response to that consultation, it is expected that the owners of the asset will submit their assessment of the decommissioning liability to the Offshore Petroleum Regulator for Environment and Decommissioning for verification. This verification will include consultation with the North Sea Transition Authority, which will be able to compare the assessment against its extensive benchmarking data. OPRED will also be able to engage third parties to provide its own assessment if necessary. Once OPRED is satisfied that the assessment is accurate, it will advise the Secretary of State on approving the amount. That is the advice route that the Secretary of State would take.

In response to the question from the noble Lord, Lord Teverson, transport and storage companies will hold the decommissioning funds, but will be overseen by the economic and operational regulators. Funds to cover decommissioning costs will be included in the allowed revenue paid to the transport and storage company. The proportion of revenue to be paid into the decommissioning fund will be determined by the economic regulator once the decommissioning liability has been calculated. I hope that that deals with that satisfactorily—clearly not.

Lord Teverson (LD): I thank the Minister for that very useful answer. Let me get that correct: the funds are being held by the commercial companies that are putting this money aside. Is that ring-fenced? If they go bankrupt, is that lost? How does it work?

Baroness Bloomfield of Hinton Waldrist (Con): It could be a commercial company. It depends who gets the contract for the funds. Then they will be invested.

Lord Lennie (Lab): Are the funds held in escrow so that they cannot be used for anything else, or can they be used as part of the normal purposes?

Baroness Bloomfield of Hinton Waldrist (Con): I do not think we have a detailed enough answer, so perhaps we should follow up in writing.

Lord Teverson (LD): I have a concern about this area and I think it is important that this is clarified.

Baroness Bloomfield of Hinton Waldrist (Con): We will clarify that point in writing before the next stage.

Amendment 105 agreed.

Amendments 106 to 109

Moved by ***Baroness Bloomfield of Hinton Waldrist***

106: Clause 86, page 78, line 13, leave out subsections (6) and (7) and insert—

"(6) For subsection (2) substitute—

"(2) An eligible carbon storage network pipeline qualifies for change of use relief if—

(a) the Secretary of State has given a CCS-related abandonment programme notice to a person in relation to the abandonment of the pipeline, and

(b) the trigger event has occurred in relation to the pipeline.

(2A) In subsection (2) "CCS-related abandonment programme notice" means an abandonment programme notice under section 29 of the 1998 Act given at a time when the pipeline is used, or is to be used wholly or mainly—

(a) for the purpose of disposing of carbon dioxide by way of geological storage, or

(b) as a licensable means of transportation.""

Member's explanatory statement

This amendment changes the conditions for change of use relief under section 30B of the Energy Act 2008.

107: Clause 86, page 78, line 37, leave out from beginning to end of line 12 on page 79 and insert—

"(3) The trigger event occurs in relation to an eligible carbon storage network pipeline when—

(a) a decommissioning fund (as defined in section 82(6)) has been established for providing security for the discharge of liabilities in respect of decommissioning costs in relation to the pipeline, and

(b) the Secretary of State certifies by notice in writing (an "approval notice") that one or more relevant persons have paid into the fund an amount or amounts the total of which is not less than the required amount.

(3A) In subsection (3)—

(a) "relevant person" means a person of a description specified in regulations made by the Secretary of State;

(b) "the required amount" means an amount determined by the Secretary of State in accordance with regulations made by the Secretary of State."

Member's explanatory statement

This amendment revises the definition of "trigger event" for the purposes of relief under section 30B of the Energy Act 2008.

108: Clause 86, page 79, line 32, leave out "and legacy"

Member's explanatory statement

This amendment is consequential on the amendment in the name of Lord Callanan at page 71, line 34.

109: Clause 86, page 79, line 33, leave out "82(5)" and insert "82"

Member's explanatory statement

This amendment is consequential on Lord Callanan's amendment at page 73, line 23.

Amendments 106 to 109 agreed.

Clause 86, as amended, agreed.

Clause 87: Change of use relief: provision of information and advice

Amendments 110 and 111

Moved by ***Baroness Bloomfield of Hinton Waldrist***

110: Clause 87, page 80, line 3, leave out "information" and insert "supplementary"

Member's explanatory statement

This amendment is consequential on Lord Callanan's amendment of Clause 87 at page 80, line 30.

111: Clause 87, page 80, line 30, at end insert—

"(2) In section 105 of the Energy Act 2008 (Parliamentary control of subordinate legislation), in subsection (2) omit paragraph (aa)."

Member's explanatory statement

This amendment is consequential on the amendments in the name of Lord Callanan of clauses 85 and 86.

Amendments 110 and 111 agreed.

Clause 87, as amended, agreed.

Clause 88: Designation of strategy and policy statement

Amendment 112 not moved.

Clause 88 agreed.

Clause 89: Duties with regard to considerations in the statement

Clause 89 agreed.

Clause 90: Review

Amendment 113

Moved by ***Lord Lennie***

113: Clause 90, page 83, line 25, at end insert—

"(aa) the Official Opposition;"

Member's explanatory statement

Under the Bill, the Secretary of State has to produce a CCUS strategy and it has to be reviewed after 5 years. However, they have the power to review it before the end of this 5-year term if certain circumstances have taken place (including a general election) but must consult certain people if it is outside the 5-year period. This amendment seeks to include His Majesty's opposition in that consultation.

Lord Lennie (Lab): My Lords, these amendments refer to Clauses 90 and 91. They concern consultation over the CCUS strategy and its periodic review. I am grateful to Drax for providing definitions. Carbon

[Lord Lennie]
capture and storage traps and removes carbon dioxide from large sources and most of that CO_2 is not released into the atmosphere. That can be either pre or post combustion. If it is post combustion, the storage usually takes place underground in large silos, the largest of which is in Texas and which is currently processing 5 million tonnes of CO_2 a year. As an advert for Drax, it reckons that it would be able to process 20 million tonnes in North Yorkshire by 2030 or thereabouts.

Amendment 113 is about the requirement to include His Majesty's Opposition in the list of organisations that must be included in stakeholder consultation. These reviews must happen either every five years or more frequently if certain circumstances take place, including a general election or if there is a material change of policy on CCUS. These reviews are to ensure a stable and predictable regulatory landscape for investors. I would have thought that the amendment to include the Opposition in the consultees' list would be quite attractive to the Government, given the current state of the political landscape in the UK—but there you go. This new requirement would clearly be of overall benefit to the development strategy by involving a wider parliamentary group beyond just the Secretary of State when a review is required. If the Secretary of State seeks to amend the statement, they will have to follow the requirements in Clause 91, which include the requirement for the statement to have been approved by a resolution of each House of Parliament before the Secretary of State can designate it as a strategy and policy statement.

The amendment tabled by the noble Baroness, Lady Liddell, in this group would ensure a requirement for consultation on the CCUS strategy and policy statement, if the Government should seek to amend it. It sets out the process that would have to be followed, and the Opposition support this amendment. I beg to move.

Lord Teverson (LD): My Lords, I was getting ahead of myself on the last group, and I apologise to the Grand Committee for that. I would have thought that the Government would like to accept this amendment, as they are likely to be in opposition in five years' time. I wait to hear from the Minister.

Lord Callanan (Con): I thank the noble Lords, Lord Lennie and Lord Teverson, for their concern about whoever might be the Official Opposition at the time. I suppose we will see. I am surprised that the noble Lord, Lord Teverson, did not want to ask for the fourth-placed political party in Parliament to be a statutory consultee as well.

These amendments seek to clarify those who must be consulted as part of the process of designating a CCUS strategy and policy statement. Amendment 113 was tabled by the noble Lord, Lord Lennie, the noble Baroness, Lady Blake, and the noble Baroness, Lady Bennett—who, sadly for us all, is unable to be with us. This amendment seeks to require the Official Opposition to be consulted as part of the strategy process. I reassure noble Lords that parliamentarians will have the opportunity to consider any draft CCUS strategy and policy statement, which must be approved by a resolution of each House of Parliament before it can be designated, as is provided for by Clause 91(10). So, of course, whoever is the Official Opposition at the time, and whoever is the fourth-placed political party at the time, will have a full opportunity to contribute to the debate on this matter.

As the Bill sets out, any CCUS strategy and policy statement that has been designated will be required to be reviewed every five years, although, in the specified circumstances set out in the Bill, a review could take place sooner than five years. When the outcome of a review is that the Secretary of State considers that the statement should be amended, the Bill provides for a statutory consultation process, including consultation with the economic regulator and relevant Ministers in the devolved Administrations. An amended statement would also be required to be approved by a resolution of each House, and would therefore be subject to parliamentary scrutiny and approval before it could be designated.

The process for designating the CCUS strategy and policy statement mirrors the process set out in the Energy Act 2013 for an energy strategy and policy statement. When the outcome of a review is that the Secretary of State considers that the statement does not require amendment, or should be withdrawn, this also requires consultation with the economic regulator and Ministers in the devolved Administrations. This is to ensure that any impact that this decision would have on the conduct of the regulator's functions, or in relation to the important matter of devolved policy, is taken into account in the decision-making process. It is also the case, of course, that the Secretary of State can update Parliament on the plans for, and outcome of, any review, as part of the normal process of parliamentary business.

On Amendment 114, tabled by the noble Lord, Lord Foulkes, and the noble Baroness, Lady Liddell, Clause 91 provides for the Secretary of State to consult whomever he or she considers appropriate, in addition to certain specified persons, in the process of developing a strategy and policy statement. This formulation enables the Secretary of State to consult ahead of laying a statement before Parliament. As I have set out, it is for Parliament to consider and approve any new or amended statement.

Although I thank noble Lords for their concern about whoever ends up being the Official Opposition at the time, and for their interest in this topic, I hope that the reassurances I have been able to provide on these points mean that they will not press their amendments.

4.15 pm

Lord Teverson (LD): May I come back to the Minister on Amendment 114? It seems very restrictive to consult as the Secretary of State decides. I cannot pinpoint this, but in many other pieces of legislation the wording is much closer to that in Amendment 114. I do not understand why the Government would not accept that very modest amendment to those "affected" by a revision of the strategy. Surely this is far more restrictive than most government legislation in this area.

Lord Callanan (Con): I do not think that is the case. As a Minister, I have issued many consultations. In my experience there is never a problem with anybody contributing who wishes to, even if they are not statutorily listed in the legislation. They are normally public consultations in any case, with a large number of stakeholders. The advice from officials and others is always to extend the scope of consultation to be as wide as possible because you then minimise any potential legal challenges as a result. I understand the noble Lord's concern but I do not think it is warranted on this issue.

Lord Lennie (Lab): My Lords, the amendment that seeks to include the Opposition as part of the formal consultation would avoid what we get in Parliament, which is the "ayes and noes" and the "take it or leave it" approaches to policy development. This is an area where we have pretty much a common interest. It seems a sensible approach to throw open the consultation at least to the Opposition—who knows, maybe even to the fourth party—but to make it as wide as possible to avoid that prospect of Parliament rejecting or accepting in total whatever is put before it. It is about buy-in. As the Minister said, there are plenty of examples where buy-in has been part of the Government's approach to consultation. It seems strange that this is not one of them. With that, I beg leave to withdraw the amendment.

Amendment 113 withdrawn.

Clause 90 agreed.

Clause 91: Procedural requirements

Amendment 114 not moved.

Clause 91 agreed.

Clause 92 agreed.

Schedule 5 agreed.

Clauses 93 to 96 agreed.

Clause 97: Financial assistance

Amendments 115 and 116 not moved.

Clause 97 agreed.

Clause 98: Low-carbon heat schemes

Amendment 117

Moved by ***Baroness Worthington***

117: Clause 98, page 90, line 32, leave out "may by regulations" and insert "must by regulations, within 12 months of this Act being passed,"

Member's explanatory statement

This amendment requires the Secretary of State to make regulations establishing a low-carbon heat scheme within 12 months of the Bill receiving Royal Assent.

Baroness Worthington (CB): My Lords, I too am glad to be back debating energy. As has been noted, we find ourselves in a completely different sent of extreme weather events today, but I am glad that we have all been able to make it here to resume this important discussion.

Since we last met, emergency legislation has gone through on some of the issues that we raised in Committee and at Second Reading on the need for a short-term response to the energy crisis bearing down upon us. The Bill is very much about long-term measures, so it is right and proper that the Government supplemented that legislation with faster-paced legislation. However, there were many provisions in that rather hurried legislation, which I know has caused concerns in the market, so the Government have to work hard to deliver the right signals to investors and to businesses around the country that the transition will be orderly and consistent and can encourage investment across the piece. I am sure we will come back to debating the net effect of all the Government's measures on energy in later clauses.

Amendment 117 relates to the setting up of a low-carbon heat scheme. Specifically, the amendment would change the provision that the Secretary of State "may" by regulations make provision for the scheme to "must" and apply urgency to the challenge of bringing forward those regulations by requiring that they are passed within 12 months of the Bill being enacted.

The reasons are self-evident. If we are to solve the problem of our reliance on volatile fossil fuels, which are also contributing to air-quality problems and climate change, we need to get on with the electrification of heat. The scheme would move us along in that direction and give investors confidence that there is a market that they can plan for and invest in. We therefore urge the Minister to reassure us that the regulations will be passed with all due haste and brought in in good time, and I look forward to hearing from him on the timetable within which we might see the regulations.

Amendment 118 seeks to add to the Bill statutory requirements for and deadlines by which we will stop selling the gas-based boilers currently going into properties. I support that in principle, although I imagine that there will be concerns about the specificity going into primary legislation. However, it is essential that we give clarity to the manufacturers of existing boilers that the Government are serious about ending their current dominance.

I receive, as I am sure everyone does, a lot of correspondence about hydrogen-ready boilers. That needs to be unpacked. I do not know what can be done to prevent the mis-selling of that concept, but it is borderline mis-selling because it is very unclear whether hydrogen-ready boilers are even possible. I therefore think it has more to do with the manufacturers preserving the status quo than with their genuinely seeking to be involved in the transition. Lots of technical advisers tell me that simply saying that something is hydrogen-ready is not sufficient and that it is very difficult and complex to achieve, so I have some sympathy with Amendment 118.

[Baroness Worthington]

Amendment 121 seeks to except hydrogen if it is compliant with the low-carbon hydrogen standard. In previous debates I have made it clear that I do not deem the low-carbon hydrogen standard sufficient. It is a number that has been put out there, but I do not think it takes into account all the effects of hydrogen on the climate specifically. Hydrogen is a greenhouse gas, as we have talked about previously. The global warming potential of hydrogen needs to be taken sufficiently into account when we consider a low-carbon hydrogen standard, and I do not think it has been, so I am a little nervous about us putting the provision in as it stands because I do not consider that standard tight enough.

The Government's amendments on opening up the opportunity for the regulations to apply to manufacturers seem entirely sensible. We have to decide the right point at which regulation would be most efficient to drive this. The manufacturers may well be the right place for this, or they may not, but having that option seems correct to me.

In Amendment 122, the Opposition Benches seek to include specificity in relation to the heat pump market. Again, I can see the logic of that. I am sure it is probing amendment, more than anything else, to get clarity on the scale of the market that we expect. I doubt that it could survive in primary legislation, but I am sure it is there to try to elicit positive statements so that the heat pump sector can move in this regard.

Amendment 119 concerns cases where it is not possible to fit heat pumps. It is a difficult amendment to legislate on. Very few of the properties where a large enough heat pump or geothermal source can be installed cannot electrify heat. Therefore, I believe that the amendment is not necessary.

I very much look forward to hearing the response to the group. As I have said, it is of primary importance to get moving, and to get investors moving, so that we can start to have a manufacturing sector that is enabled by those regulations as quickly as possible. I beg to move.

Lord Lennie (Lab): My Lords, 95% of UK homes are centrally heated and most CO_2 emissions come from burning fossil fuels, contributing to about 30% of the UK's total greenhouse emissions, about half of which is from heating our domestic properties. Will gas boilers be banned in 2025? As part of the future homes standard, new homes will be able to install only energy-efficient heating systems and will produce 31% lower emissions compared to the current levels. The standard will come into effect in 2025. The International Energy Agency has also stressed that no new gas boilers should be sold after 2025. The UK's official climate advisers recommend that all gas boilers should be banned by 2033 to end the UK's further contribution to climate change. That is the background to the amendments being moved.

We support Amendment 117 tabled by the noble Baroness, Lady Worthington, which adds a bit of the oomph by replacing "may" with "must" in relation to the low-carbon heat scheme. Amendment 119, in my name, would ensure that the Secretary of State, in making a low-carbon heat scheme, must

"provide a plan for low-carbon heating in homes where it is uneconomic or unfeasible to have a heat pump (large, rural, off-grid homes etc.)."

Amendment 121 seeks to allow

"heating appliances that use hydrogen produced to the Low Carbon Hydrogen Standard (blue hydrogen) to be included in low-carbon heat schemes."

I note what the noble Baroness, Lady Worthington, said about hydrogen in general, but if we are going to have hydrogen, let us have blue hydrogen at this stage.

Amendment 122 states:

"Sub-paragraph (i) seeks to include the Government's own figures for heat pumps in the Bill. Sub-paragraph (ii) seeks to include the number of heat pumps in the latest figures on recommendations from the CCC. And sub-paragraph (iii) seeks to oblige manufacturers producing gas boilers to turn to minimum 25% production of heat pumps by 2028 to facilitate the clean heat transition."

Government Amendment 123

"makes it clear that a low-carbon heat target set by virtue of clause 100(1)(c) or (d) may be set, in the case of a manufacturer, by reference to heating appliances of the manufacturer that are supplied or installed, whether by the manufacturer or someone else."

Government Amendment 124 simply corrects a drafting error.

Amendments 117, 119 and 121 relate to Clause 98 in Chapter 1, on low-carbon heat schemes, of Part 3, on new technology. Clause 98 provides the Secretary of State with powers to set up a regulatory scheme through secondary legislation to encourage the sale and installation of low-carbon heating technologies, such as electric heat pumps. Clause 98(3)(b) allows for this to include, for instance, hybrid heat pump systems that involve both a heat pump and a fossil fuel boiler. This is welcome, but our primary concerns are when and how the powers will be used. Amendment 117, tabled by the noble Baroness, Lady Worthington, requires the scheme to be set up within 12 months of the Bill becoming law, and we agree with that.

Amendment 119 seeks to ensure that the Government are aware that there are a number of homes where heat pumps are not the solution, and to address filling this large gap. There is one fundamental flaw with this clause that Amendment 121 seeks to address: it effectively prohibits the deployment of either hydrogen-ready boilers or boilers that use blue hydrogen under low-carbon heat schemes.

4.30 pm

The clause is directly in opposition to the Government's wider policy. Ministers have committed to consulting on the potential mandating of hydrogen-ready boilers and to making a decision in 2026 on the technological routes to decarbonising home heating. Blue hydrogen, which is derived from natural gas in combination with carbon capture, utilisation and storage, is low carbon by definition. Hydrogen can immediately reduce emissions by being blended into the gas grid, followed potentially by full conversion. But blue hydrogen will likely be an important bridging fuel until green, pink and yellow hydrogen can be generated at scale. If the clause remains unamended, it will choke off investment in hydrogen-ready boilers and hydrogen production with carbon capture, utilisation and storage, which removes up to 99% of emissions.

The clause is strongly opposed by trade unions, including the GMB, which represents gas workers. It believes that continued research and investment in hydrogen are essential if the UK is to make the most of the skills and expertise of the gas workforce. Will the Minister agree to look at this again ahead of Report, and will the Government agree to meet a delegation of unions to discuss their concerns?

Amendment 122 is to ensure that the powers contained in the Bill are used with purpose and in a timely manner. I have asked for officials to meet members of the hydrogen industry, particularly those conducting real-world trials of hydrogen in the gas grid, as well as the unions, to talk through the impact of the amendment. It is our understanding that no engagement on this clause has taken place with industry or the unions. I beg to move.

Lord Naseby (Con): On Amendment 121, the Minister knows as well as I do that extensive work is being done on a 20% hydrogen/natural gas trial to provide central heating, et cetera, in homes. If that is the situation, either this amendment should be accepted or perhaps the Minister could explain how it will be possible for that work to continue.

Baroness Sheehan (LD): I rise in support of Amendments 117, 118 and 122. If we are to move towards cleaning up heat, we really need to get on with it and put sensible deadlines in place rather than leaving it open-ended, as it currently stands in the Bill.

Amendment 118 tightens up what needs to happen by when and makes some very sensible suggestions on timeframes for

"the banning of the installation of unabated gas boilers in new properties from March 2025 … the banning of the sale and installation of unabated gas boilers in all properties after March 2035."

We need to get on with this. I support the amendment wholeheartedly.

Likewise, Amendment 122 would introduce a deadline

"to include the number of heat pumps in the latest figures on recommendations from the CCC."

On Amendment 121, like the noble Baroness, Lady Worthington, I add my note of caution about reliance on hydrogen. It is an unproven technology. There are ample studies and research that point to there being substantial barriers before it can be delivered at a low enough cost. Not least, there are technical difficulties: we know that the existing pipelines will not be suitable. So it will not be a straightforward case of replacing a natural gas boiler with a hydrogen or blend boiler. There are far greater changes that need to be made to the whole infrastructure before deployment.

Lord Callanan (Con): My Lords, I will start with my Amendments 123 and 124. Amendment 123 seeks to provide additional clarity to Clause 100. Clause 100(1) provides examples of how targets for a low-carbon heat scheme may be set. The amendment's addition of proposed new subsection (2A) clarifies that an average appliance efficiency or emissions intensity target could apply to all of a given manufacturer's heating appliances sold in the UK, whether or not they were sold or installed by the manufacturer itself. This had been explicit in one of the examples in the list in subsection (1) but not in others. The Government believe that it is prudent to make this explicit and it provides additional clarity.

The Government have tabled Amendment 124 purely to correct a minor drafting error in Clause 100(4), replacing "activity" with "appliance" so that the subsection has its intended meaning.

Moving on to the amendments tabled by other noble Lords, I will start with Amendment 117 from the noble Baroness, Lady Worthington. The Government have always been clear that they intend to introduce the low-carbon heat scheme provided for by this chapter in very short order; namely, from 2024. However, it is the Government's view that it would not be appropriate to incorporate a timeline into the Bill. If the noble Baroness will take my word for it, we intend to get on with this fairly quickly. It is important that the legislation retains the opportunity, if necessary, to respond to any unforeseen changes in market conditions, et cetera, and to ensure that the necessary administrative and enforcement systems are established. We are indeed looking at the appropriate enforcement mechanism at the moment.

I turn to Amendment 118, the first of four in this group in the names of the noble Lord, Lord Lennie, and the noble Baroness, Lady Blake. I also thank the noble Baroness, Lady Sheehan, for her contribution. This amendment would require there to be a link between the introduction of a low-carbon heat scheme and a ban on the installation of gas boilers in new-build and existing properties respectively.

Noble Lords will be aware that the Government will introduce a future homes standard in 2025, which will effectively require that new properties are equipped with low-carbon heating and high energy efficiency, avoiding the need for future retrofitting. New properties would be taken care of in that respect. It would be premature to decide exactly what policy approaches will be best suited to implement the phase-out of natural gas boilers in existing properties.

I do not believe that it is helpful to create a dependency between the ability to launch a scheme on the one hand and a particular, separate measure such as an appliance ban, as the amendment proposes, on the other. That would risk delaying the introduction of such a scheme altogether.

On Amendment 119, the Government have been clear that a range of low-carbon technologies are likely to play a role in decarbonising heating. District heat networks have an important role to play in all future heating scenarios, as do electric heat pumps. Work is ongoing with industry, regulators and others to assess the feasibility, costs and benefits of converting gas networks to supply 100% hydrogen for heating. As the noble Baroness, Lady Sheehan, said, it is indeed a considerable challenge, but we need to do the studies to work out whether it is feasible. Of course, other technologies may also play a supporting role.

To establish whether or not it is a feasible technology, the Government have an extensive programme of work already under way to develop the strategic and policy options for all these technologies and for different building segments. Another plan, seeking

[Lord Callanan]
restrictively to prescribe the right solution for all properties now and out to 2050, is not particularly necessary or helpful.

I thank my noble friend Lord Naseby for his contribution on Amendment 121. This amendment would expand the potential set of low-carbon heating appliances that could be supported by a scheme established under the power in this chapter. However, I emphasise that the set of potential relevant low-carbon heating appliances established in this clause is solely for the purposes of a scheme under this power. It does not in any way serve as a comprehensive statement of all potential low-carbon heating appliances, and it has no wider bearing on what could be considered low-carbon heating appliances in any other policies, schemes or legislation.

The Government recognise that low-carbon hydrogen could be one of a few key options for decarbonising heat in buildings. To that end, the Government are working to enable strategic decisions in 2026 on the role of hydrogen in heat decarbonisation; I note the scepticism of a number of noble Members about this. The Government will bring forward the necessary policies and schemes to support the deployment of hydrogen heating, depending on the outcome of these decisions. We will also shortly consult on the option of requiring that all domestic gas boilers are hydrogen-ready from 2026. Since the scheme provided for by this measure would not be suitable or necessary to support the rollout of hydrogen-using or hydrogen-ready heating appliances, it would not be helpful to expand the scope of the power in this way.

Finally, Amendment 122 in the names of the noble Lord, Lord Lennie, and the noble Baroness, Lady Blake, would require that three specific targets be incorporated into regulations for a low-carbon heat scheme. Again, the Government believe that targets are best set and adjusted in the scheme regulations, based on an assessment of the market conditions at the time, rather than in the enabling legislation in advance.

I turn to the specific targets that the noble Lord proposed. I have said a number of times that the Government's ambition is to develop the market towards 600,000 heat pump installations per year in 2028. That is what we assess to be a scale necessary for and compatible with all strategic scenarios for decarbonising heating by 2050. Although the Government have clear plans to support industry to build a thriving manufacturing sector for heat pumps in the UK, we do not believe that a production quota is an appropriate way to achieve this.

In the light of what I have been able to say, particularly on the consultation, I hope that the noble Baroness, Lady Worthington, will agree to withdraw her amendment.

Lord Teverson (LD): My Lords, I wanted to give the Minister the opportunity to introduce his amendments, but I will say a couple of things about this because low-carbon heating is a key issue. As he will know, 40% of UK emissions, more or less, are from heating. One of the big gaps in the Bill is part of the solution to that: home efficiency, which does not really appear in the Bill at all but should have.

I would like to ask the Minister specifically about energy from waste. Clause 98(4) has a list of fossil fuels, but energy from waste is not there. It is sort of a hybrid of being one and not. Over the last decade or so, one of the issues has been that when we have had energy-from-waste plants there has been a big emphasis on them being compatible with using the excess heat for commercial or domestic heating purposes, but hardly any of them do that. They get the planning permission but hardly anything happens. There are one or two in south London where it works, but generally it is not the case. Where do energy from waste and the high carbon emissions from disposing waste fit into this? Do the Government have any appetite—I do not really see it in this section of the Bill—to repair that past omission and make sure that excess heat from those facilities is used far more effectively, and perhaps compulsorily, in future?

4.45 pm

Lord Callanan (Con): The noble Lord makes a good point. Before he corrected himself, I was about to contradict him and say that a number of energy-from-waste plants are already supplying district heating networks—as he said, there is a particularly big one in south London, which I have visited. It is doing so, because the Government supported it. It received grant money to enable it to do that. There are a number of others around the country, so we already have existing powers and support funds to support heat networks.

We are very supportive of energy-from-waste plants using the waste heat to connect into district heating networks. However, it is a difficult area, because it depends on a number of factors. You have to have the energy-from-waste plant in the first place, and office blocks, apartments, et cetera have to be available to take the waste heat. The noble Lord will know that later in the Bill we will discuss the zoning power for heat networks that local authorities will have, which hopefully will enable them to utilise those powers and take heat networks forward; there are a number that are very keen to do so. I would certainly envisage that a number of energy-from-waste plants—those in inner cities, in particular—will be able to take part in those initiatives.

Baroness Worthington (CB): I thank the Minister for his response. I am somewhat reassured by the timetable that these regulations will be pursued against. I would like to mention that it is not unusual for government to announce things and for there to then be quite a long delay. Energy-efficiency standards reaching EPC C by 2035 was first announced in 2017, but we still have not seen that make it through. If we had, we would be in a far better position now as we face this winter, where we have shortages of gas, and we should have more efficient homes. There is a reason why we are pressing on this timescale.

I support the Government's amendments as introduced and the Minister's statement that it is not helpful to expand this particular scheme at the moment any further than it is already defined. It is important to have clarity. The nearest corollary to this legislation is the ZEV mandate, which we will probably discuss in relation to the amendment tabled by the noble Baroness, Lady Randerson. It is better to have clarity of purpose

that gives manufacturers and industry time to adapt and build an industry. It is clear in my mind that electrification of heat is probably 90% of the answer, if not the full answer. Therefore, getting it right, keeping it tight and giving confidence for investment would be the fastest way for us to get off volatile, expensive and unhealthy fossil fuels. However, I beg leave to withdraw the amendment.

Amendment 117 withdrawn.

Amendments 118 to 121 not moved.

Clause 98 agreed.

Clause 99: Application of scheme

Clause 99 agreed.

Clause 100: Setting of targets etc

Amendment 122 not moved.

Amendments 123 and 124
Moved by ***Lord Callanan***

123: Clause 100, page 92, line 26, at end insert—

"(2A) In the case of a low-carbon heat target that is imposed by virtue of subsection (1)(c) or (d) on a scheme participant who manufactures heating appliances, the target may be set by reference to heating appliances that are supplied or installed (whether or not by the scheme participant)."

Member's explanatory statement

This amendment makes it clear that a low-carbon heat target set by virtue of Clause 100(1)(c) or (d) may be set, in the case of a manufacturer, by reference to heating appliances of the manufacturer that are supplied or installed, whether by the manufacturer or someone else.

124: Clause 100, page 92, line 31, leave out "activity" and insert "appliance"

Member's explanatory statement

This amendment corrects a minor drafting error in subsection (4) of Clause 100.

Amendments 123 and 124 agreed.

Clause 100, as amended, agreed.

Clauses 101 to 107 agreed.

Amendment 124A
Moved by ***Baroness Randerson***

124A: After Clause 107, insert the following new Clause—

"Low-carbon transport schemes

(1) The Secretary of State must by regulations make provision for the establishment and operation of one or more low-carbon transport schemes.

(2) A low-carbon transport scheme for the purposes of subsection (1) must include, but is not limited to, the use of hydrogen as fuel to power vehicles.

(3) Regulations may include—

(a) the setting of low-carbon transport targets,

(b) encouraging and incentivising the provision of networks of refuelling stations supplying hydrogen for vehicles, and

(c) encouraging and incentivising businesses which run fleets of vehicles to convert to hydrogen fuel.

(4) Regulations must specify that, where low-carbon transport schemes include the use of hydrogen, the hydrogen must meet the UK Low Carbon Hydrogen Standard.

(5) Vehicles covered by low-carbon transport schemes may include e-bicycles and e-motorbicycles.

(6) Hydrogen to power vehicles may be used in a fuel cell or burned in a combustion engine."

Member's explanatory statement

This amendment would require the Secretary of State to encourage and incentivise the use of low-carbon transport schemes, similar to the low-carbon heat schemes in the Bill, particularly the use of hydrogen to power vehicles.

Baroness Randerson (LD): I decided to table this amendment, because I felt that it was important to draw attention to what I and many in the transport sector see as the lack of leadership from the Government on this issue. It is important to bear in mind that the Government have seemingly very good targets on decarbonising the transport sector, but there is no detail on how we are going to get there. The path ahead is very vague.

Transport is the largest carbon-emitting sector in the UK. It is responsible for a quarter of CO_2 emissions globally. In the UK, the sector has reduced its emissions by only 3% since 1990. That stands in contrast with other sectors. There is a desperate need for leadership, because we are falling behind. The evidence is that we have to be halfway there by 2030 to reach the goals for 2050, but we do not have the plans, the policy or the path set out for us, and it is now a matter of great urgency.

One reason why emissions have not reduced is that although the technology has improved, the number of vehicles on the road has increased, as has the size of cars. Although they are more efficient kilo for kilo, if I can put it that way, they weigh more now and have a greater impact and emit greater amounts of carbon. I want to say briefly that we are talking about this in relation to carbon emissions, but it is, of course, a matter of health. It has a huge impact on our breathing and things like heart attacks, and so on. It is a matter of considerable importance in health.

A great deal is made about the move to electric vehicles, but only 2% of the vehicles on the roads so far are EVs. We are a very long way behind the leaders—countries such as Norway, where up to half of vehicles sold are EVs. My amendment refers specifically to hydrogen, and hydrogen is controversial. Of course, it must be green hydrogen. Even then, green hydrogen has disadvantages, but the advantage of hydrogen is that it provides an early answer to the difficult-to-decarbonise sectors of the transport world—that is, heavy goods vehicles, heavy vehicles generally and, of course, shipping, which is particularly difficult to decarbonise. That is one reason why there is the reference to hydrogen.

The other reason why there is a reference to hydrogen is that, unlike with electricity for vehicles, hydrogen cannot really be installed on a commercial basis unless the Government put in place a set of carrots and sticks to encourage it commercially to be installed. It costs over £1 million to install a hydrogen-fuelling point. It is not the answer for ordinary domestic cars. It could be the answer for fleets of vehicles such as vans, but it is not going to be, unless the Government provide leadership.

[Baroness Randerson]

I have been raising this issue for the past six years at least, and the Government have said that the market will solve the problem of electric vehicle charging points. To a certain extent, the market has stepped in. Of course, there are huge gaps, but the market has stepped in. The reason it has been able to is that all around us there is electricity—but we do not have hydrogen all around us. I deliberately mention hydrogen in the amendment because the Government need to consider how they are going to lead on this issue.

I finish by saying that the point of the amendment is to open up the matter for discussion and to give the Government the opportunity to consider—and, I hope, to think again about—the urgent need for leadership in setting out a set of steps, a policy or plan. These exist in other countries without Governments taking a huge commercial risk, but simply by providing the incentives to encourage people to choose more environmentally friendly ways of fuelling their vehicles and ensuring that, having chosen a more environmentally friendly vehicle, they can run it efficiently and effectively.

Noble Lords will be well aware that every time we talk about electric vehicles, there is immediately a discussion of the latest crisis that someone has faced in being unable to charge their EV—despite the fact that they are probably running short of electricity outside a house or fuel station that is blazing in electricity. Let us just think about how much more complex the matter is if we are talking about hydrogen.

This is about discussing the difficult issues and encouraging the Government to look ahead and plan—urgently—for what must be achieved. The average life of vehicles on the roads now is 16 years, I believe, and that will probably get longer because we are facing a period of difficulty, austerity and rising prices. This is therefore important, because those decisions made this year about what vehicle to buy—whether you are an individual or as a company—will be with us for decades to come. The Government must lead in the way only Governments can. I beg to move.

Baroness Worthington (CB): My Lords, I shall speak to Amendment 124A, as presented by the noble Baroness, Lady Randerson. I must say that it is seldom that we disagree, because we both share the objectives of a rapid response to the growing climate risk, rapid decarbonisation and increasing the efficiency of our energy systems. I welcome this chance to have a debate about the intersectionality between transport and energy. In fact, and not to pre-empt it, I have an Oral Question later this week about how departments connect on these issues. It is hugely important that the DfT, in particular, teams up with BEIS on planning for our future decarbonised energy systems.

That said, I do not think it will come as any surprise that I am absolutely opposed to the idea of bringing in this set of amendments as currently drafted. My belief is that hydrogen will have a very limited role, for three reasons. First, it is itself a climate change gas and it is very slippery; it is the smallest molecule on the periodic table and it escapes everywhere. I do not wish to have hydrogen all around me—quite the opposite. I want hydrogen in very controlled places, being looked after by industrial chemists; I do not want it in my home or in my vehicle. We just have to look at the explosion of the hydrogen fuelling station in Norway. It is often forgotten but this is a hugely explosive gas. Norway managed to blow one of its fuelling stations and, if Norway can blow things up, anyone can.

5 pm

I am therefore very sceptical that hydrogen will have a role in distributed energy systems. It will have a role, however, in industrial applications, specifically the production of ammonia for fertiliser. Where we use hydrogen already, it comes from gas and is hugely expensive. We should shift our agricultural subsidies to make green hydrogen into fertilisers. That should be a priority and I am certain that it will play a crucial role.

There is a second place where hydrogen might play a role, which is in shipping. If I have some sympathy with the amendment, it is that it is trying to get the Government to focus on what we are doing with our shipping sector. We are an island nation; we have ferries and ships. We could do so much more with our maritime sector. I hope we will have an overabundance of clean energy in future. It might well be that shipping—certainly long-distance shipping—will be a viable market.

As I said, hydrogen will be in the hands of a few players and will be highly regulated in those instances. It should not be distributed across the country because of the safety issue, but it is also a pollutant in the traditional sense, not just the greenhouse gas sense. It is often forgotten that when you combust hydrogen in the atmosphere you get NOx emissions. That is why it has no place in the home: if you use a hydrogen boiler it will have a higher impact on your health than if you use a natural gas boiler. That is well documented; quite frankly, I do not even know why we are still debating it. The same will happen in transport: if we use hydrogen widely, we will get elevated NOx emissions. For those reasons, I very much doubt that it will play any role in those distributed numbers of vehicles, but it has a place in industry.

I encourage the Minister and his department to come forward with a much more targeted approach to hydrogen. Let us abandon any misguided thoughts that it will be in everyone's home or vehicle. That would be dangerous on many levels and a setback. We want targeted policies that bring about rapid electrification. Although I am very grateful for the opportunity to have this debate, as noble Lords can see, I feel passionately that we should stick to our guns. "Electrification of everything" is more or less the catchword that we need to adopt, but let us have this debate and bring forward some policies for industrial applications, shipping and fertiliser production, because we are not on track and we could be doing more.

Baroness Jones of Moulsecoomb (GP): My Lords, I support the thrust of these amendments but I also have huge qualms about hydrogen and electric vehicles. Quite honestly, electric vehicles still clog the roads and their drivers still run over and kill people. If we are thinking about low carbon, we should go for public transport.

I also want to quibble with the noble Baroness, Lady Randerson, when she said that there was a lack of government leadership on this issue. The fact is that

the Government are not giving us leadership on any issues. They are running around like a pack of confused ferrets. We are incredibly lucky that the whole of Britain is somehow hanging together and not having any disasters.

Returning to the amendments, something Greens are always very concerned about is marketisation and financial engineering around environmental issues. The UK has a long and dangerous track record of mismanaging this. In the same way that financial engineering around mortgages caused the 2008 financial crisis, there are risks that bankers will abuse the climate crisis as an opportunity to get filthy rich while destroying the very systems we are working to protect. It has been done before.

That is why we are concerned about concepts such as natural capital, which risks being a double-edged sword. If it helps policymakers to recognise the immense value of our natural capital and our natural world, it might be helpful, but if it simply creates new opportunities for bankers to get filthy rich, it is deeply dangerous.

For this reason, it is essential that carbon removals are genuine physical processes that remove carbon dioxide from the atmosphere and lock it up. There cannot be any ambiguity or scope for financial markets to exploit for profit, or for our Government to claim success when no real carbon dioxide has been removed from the atmosphere.

I was at a round table last week; there were about 16 of us, and we were fairly evenly divided between scientists and parliamentarians. All the parliamentarians were from the Commons, apart from me. The scientists all agreed with each other and kept saying the same thing: that we must stop burning fossil fuels. However, all the parliamentarians, apart from me, said, "Oh, that's quite difficult—I cannot ask my constituents not to fly", and things like that. My concern is for the Government to be deeply behind the science. Even the UN is now saying that we must act urgently. You cannot, even now, talk about low carbon and net zero; we are past the point where they will have the impact that we need. Instead, we should be talking about carbon-negative measures. If the Government do not wake up to that very soon, I hope that we can replace them.

Lord Whitty (Lab): My Lords, much has been said already. I agree with the main thrust of the amendment tabled by the noble Baroness, Lady Randerson, which urges the Government to set out a very clear case for the decarbonisation of the various transport sectors. I do not think that we are there yet, and I do not think that the industry feels that we are there yet. It is important, for the reasons that the noble Baroness has just spelled out, that the transport sector knows which way it is going.

I must partially apologise to and reassure the Committee, because some of my speech was intended for the previous group of amendments. As noble Lords were making such commendable progress this afternoon, I did not get here in time to intervene on the amendment on home heating—an issue where, again, some clarity of decision is needed. Home owners and landlords are now faced with decisions on how to replace their gas boilers: they know they need to get rid of their gas boilers, but quite what they are going to get to replace them with is unclear. Of course, people replace their cars, and even their lorries and buses, rather more frequently than their houses and boilers. It is important, therefore, for the transport industry that there is some clarity on the general direction of government policy for the different sectors of transport.

On this topic, we immediately run up against the issue of hydrogen. I am not quite as sceptical as some of my colleagues, but I am sceptical, because hydrogen has been seen as a "get out of jail" card for almost every sector on their decarbonisation trails. That is not only for heavy industry, to replace the very heavily carbon-fuelled industries such as steel, glass and so forth, with its knock-on effect on the construction industry, et cetera, but for parts of the transport sector and for home heating. It has been seen by some as the solution to the decarbonisation of heavy vehicles, shipping, the train system and even aviation. However, hydrogen is not capable of doing that without safety dangers; and, in any case, it is not capable of doing that because we do not yet have the technology for producing green hydrogen at scale. Therefore, it will come in, if at all, only much further down the line. However, waiting for hydrogen—whether in the form of hydrogen blend for home heating or hydrogen-based vehicles or batteries for the transport sector—is seen as an excuse for not taking other technologies more seriously and urgently than we have done.

The amendment tabled by the noble Baroness, Lady Randerson, would require the Government to do that job for the transport sector. I think that they need to do that for other sectors as well, and that they should not exaggerate either the degree to which hydrogen is the solution or, in particular, the closeness of technological breakthroughs to provide genuinely green hydrogen. It is not going to happen in the kind of timescale that we are talking about. Therefore, the amendment has implications beyond transport, but transport itself needs a clear plan. I hope that the Minister will take up with his transport colleagues the need to work urgently, as the noble Baroness's amendment urges, to ensure that the transport sector knows where it is going, even if nobody else does.

Baroness Worthington (CB): My Lords, I am sorry to speak a second time—I am not sure whether I am allowed—but may I speak to Amendments 130A and 130B? In my excitement I forgot to speak to them. Those amendments in my name seek to address the carbon removals questions in the Bill.

Amendment 130A is to try to interrogate the Government's amendments to the definitions of carbon removals, as stated in the Climate Change Act. My amendment would reinstate reference to forestry and other physical activities in the UK. I think this amendment is necessary because we do not want to see definitions used in the Climate Change Act, which are foundational to our understanding of what we need to do to tackle climate change domestically, to somehow allow vague processes such as the purchasing of offsets or some other financial instrument to be eligible for the net-zero accounting. I seek reassurances on that. I also seek reassurances that we acknowledge that forestry and

[Baroness Worthington]
land use need to be referenced alongside mechanical sinks to keep the system holistic and inclusive. So I am probing on those two questions: forestry and land use, and making sure we are talking about physical activity and not financial chicanery or accounting trickery.

I feel quite passionate about Amendment 130B. I am sure the UK will emerge as a world leader in this regard. If we are to become the centre of a market or set of policies that are economy-wide in decarbonising our system, we will have to get to grips with the MRV—the monitoring, reporting and verification of carbon removals—to get to a net-zero position. It is hugely important. When you burn a tonne of fossil fuel the impacts are certain and very low in error bars, but when it comes to the biospheric removal of carbon in particular, there are huge uncertainties and an absolute paucity of data. It really has not been looked at comprehensively enough, especially now that large sums of money may be resting on this approach to reaching net zero.

I urge the Minister and the department to really assess what the UK could do to set some gold-standard regulations regarding carbon removals. Let us start the debate with this Bill, pursue it and continue with it. Given that we are at the forefront of reaching these challenging carbon budgets that we have set ourselves, I have no doubt that carbon removals will have a role to play. But let us do it in a world-class way and not use it as a weasel-word excuse for allowing fossil fuels to continue, without the certainty that those removals are genuine, additional and permanent and can offset the almost permanent damage that we know occurs from the release of fossil fuels. It is hugely important that we do this. I tabled this as an opportunity to spark a debate, and I hope we will come back and consider it in more detail. The UK has a great potential role to play in this area.

Baroness Sheehan (LD): My Lords, as a member of the House of Lords Science and Technology Committee, I took part in the report we produced on batteries. The genie is out of the bottle on domestic EVs. That is going to happen; I think we are well on the road to better and better battery technology.

When the committee examined transport, we heard that batteries are heavy—a battery to power a bus would be very heavy—so there is a role for hydrogen in public transport for return-to-base vehicles where hydrogen does not have to be moved too far. Where there is a limited number of filling stations, that is a model that could work. Shipping and heavy industry, such as cement, are other applications for hydrogen.

My noble friend Lady Randerson mentioned fuel cells. We found in our report that for some reason the Government are not backing research on fuel cells to the extent that they could. Fuel cells would be another potentially sensible source of power for heavy transport vehicles, so I support the basic thrust of my noble friend's amendment.

Amendments 130A and 130B, tabled by the noble Baroness, Lady Worthington, are really crucial. We are going to have to look at carbon removals, as the noble Baroness, Lady Jones, said earlier. We need to do it in a way that gives confidence against greenwashing, of which there is far too much. The only way to do that is if accounting for carbon is rigorous.

5.15 pm

Baroness Young of Old Scone (Lab): My Lords, I support the noble Baroness, Lady Worthington, in her two Amendments 130A and 130B and stress that the measurement, monitoring and verification of UK removals is vital. I declare an interest as chairman of the Woodland Trust. I have just been involved in the bowels of the woodland carbon code. It is quite staggering to think that many of these verified units of removal will not achieve full verification for 20, 30, 40 or 50 years and are then required to persist for 100 years. We have to find a way of inventing a system that will keep an eye on a plethora of landowners and land interests who are planting trees to sequester carbon and have that effective supervision, light-touch as it may be, for 100 years.

This will be quite a challenge. It is something I would appreciate the Minister responding to. We are now in the middle of implementing the peat carbon code, which will have similar difficulties, but perhaps the most important one has not yet been developed: the soils carbon code. That is of far more potential than either the peatland or woodland carbon codes in sequestering carbon. It will be a very widespread code because soils exist everywhere, though not all of them will be potentially good at sequestering carbon. I urge the Minister to accept these two amendments and give us a feel, as it were, of those 100 years and how the complexity of the carbon codes can be relied upon.

Before I finish, I make a similar apology to that of my noble friend Lord Whitty, as I was not here to speak to my Amendment 119. I did not miscalculate the pace at which the Bill would go; I was miscalculating the pace at which a snowed-in train would move. Since the Minister is appearing before the Environment and Climate Change Committee on Wednesday, I can ask him the question then anyway.

Baroness Blake of Leeds (Lab): This has become a very rich debate. I thank the noble Baroness, Lady Randerson, for putting her amendments forward to enable us to have these broader discussions. We have said from the start that the difficulty with this Bill is the things that are not in it; this is one area we can all learn from and hopefully move forward on.

I also thank the noble Baroness, Lady Worthington, for the explanation of her Amendments 130A and 130B. I am sure that we would all welcome more clarity in these areas, and indeed a strategy so that we can bring confidence and certainty to the sector in the way that she described.

I will focus most on Amendment 124A in the name of the noble Baroness, Lady Randerson, in my comments and, in particular, the notion of adding local carbon transport schemes to the section on low-carbon heat schemes—indeed, to run alongside them.

As many will know, this was last looked at under the last Labour Government, with the 2009 report *Low Carbon Transport: A Greener Future*, which, interestingly, was published by the DfT. It made

recommendations on supporting a shift to new technologies and fuels, promoting lower-carbon choices, and using market mechanisms to encourage a shift to lower-carbon transport. Of course we have moved on in many ways, but these principles should not be overlooked and we should continue to put in our full effort.

Specifically on hydrogen vehicles, we believe there is merit in looking at potential in the HGV sector. The discussions about shipping were interesting as well, but we feel that so much more focus needs to be put on alternatives, certainly in the short-term. Electric is obviously being looked at.

It is important to debate this at this point because, with the global situation regarding gas supplies, we are focusing our attention on domestic energy in particular, for obvious reasons—the cost of living crisis, security issues and all that goes with it—but we have to bear in mind that transport is one of the biggest sources of carbon emissions in the UK. In 2019, it accounted for 34% of the UK's total carbon emissions. Its emissions have remained largely unchanged since the 1990s, which we cannot say about the energy supply generally. We have to ask why transport is such a poor performer.

We need to be concerned about where we get the electricity from if we continue with our ambition. If we are to reach our target of net-zero emissions by 2050, the decision to ban new petrol and diesel cars from 2030 will help, but there are so many other areas that we should focus on: alternative modes of transport, cycling and walking, and shared travel options. From my point of view, we have this enormous disconnect between transport policy and the policy we are discussing. We need to pick it up and take it seriously.

I speak with my experience of being a member of Transport for the North. All the schemes we tried to bring in through the integrated rail plan to deliver not only for the travelling public but for the impact on the climate seem to have been left behind. We have discussed this before. We have had Questions in the Chamber about the lack of joined-up thinking from the Government, which needs seriously to be addressed. The noble Baroness, Lady Randerson, referred to it as a lack of leadership and vagueness in the plan, but why are we not cross-referencing within the Bill to the work that needs to be done?

Speaking with my local government hat on, on building new homes, why can we not look at the schemes in Scandinavia in particular, where every new home has solar panels and the excess electricity generated is taken off and fed into personal electric charging points for vehicles? There are so many examples that we should look at.

The amendment has generated an opportunity to discuss this. I look forward to the Minister's response to the amendments from the noble Baroness, Lady Worthington, but in particular to her explanation as to why there is such a lack of joined-up thinking in these areas, where the potential could be enormous.

Baroness Bloomfield of Hinton Waldrist (Con): My Lords, I thank all noble Lords who participated in the debate, particularly those who tabled amendments.

I will speak first to Amendment 124A, tabled by the noble Baroness, Lady Randerson, but I must start by taking issue with the idea that the Government are not showing leadership. I believe that they are showing leadership with low-carbon transport solutions. For example, this year alone we have announced £200 million for the zero-emission road freight demonstrator programme, which includes hydrogen and electrification for HGVs; another £200 million for zero-emission buses, again including both hydrogen and pure electric; £30 million for a fleet of 124 buses in the West Midlands; £206 million for the UK Shipping Office for Reducing Emissions—or UK SHORE—to decarbonise maritime, which includes a mix of different technologies; and up to £12 million until August 2023 and up to £60 million until March 2025 for the second and third rounds of the clean maritime demonstration competition, funding feasibility studies and pre-deployment trials in zero-emission shipping hydrogen technologies for maritime applications. As the noble Baroness will be aware, there is also £20 million for phase 2 of the Tees Valley hydrogen transport hub, with an additional £300,000 put forward to support local skills.

On aviation, the SR21 funding for hydrogen-related aviation activity has not yet been announced but is forthcoming. We have also announced £165 million for the advanced fuels fund to kick-start a sustainable aviation fuel industry in the UK.

All this goes to demonstrate that we are doing a lot of work to show leadership in this area, putting money into research to help us solve some of the problems raised in this debate. Work is already under way in the Department for Transport in close collaboration with BEIS; it is really helpful that the former Secretary of State for Transport is now the Secretary of State for BEIS, so he will be very well versed in some of these issues. I can reassure noble Lords of the continual conversation that happens between the two departments in this regard. In close collaboration with BEIS, as set out in the Government's transport decarbonisation plan, the Department for Transport is delivering on its comprehensive plan for decarbonising transport, which includes supporting a greater role for hydrogen through schemes such as those I have mentioned.

As we have seen, there is a significant role for hydrogen in heavier transport applications or where things such as refuelling times and infrastructure constraints make it the best choice. However, we do not consider that a new statutory, regulatory regime would add anything new to the work already being done. It is always necessary to consider whether the benefit outweighs the regulatory burden. I hope that the noble Baroness is reassured by the Government's commitment to this cause, and I ask her to withdraw her amendment.

Amendment 130A seeks to limit the definition of "UK removals" in Section 29 of the Climate Change Act, excluding mechanisms such as financial instruments that do not relate to the physical removal of greenhouse gases in the UK. I reassure the noble Baroness, Lady Worthington, that Clause 111 does not expand the definition of "UK removals" to non-physical processes, but instead to greenhouse gas removals achieved by engineered methods, such as bioenergy with carbon capture and storage. This is to align the definition with

[Baroness Bloomfield of Hinton Waldrist]
current international best practice, including guidelines set out by the United Nations Framework Convention on Climate Change.

I equally reassure the noble Baroness, Lady Jones, that it is the Government's priority to reduce emissions of greenhouse gases from human activities and to adapt to those climate change impacts that are unavoidable. We are clear that the purpose of greenhouse gas removals is to balance the residual emissions from sectors that are unlikely to achieve full decarbonisation by 2050. It is not a substitute for decisive action across the economy to reduce emissions. Nature-based methods, such as afforestation and habitat restoration, will be essential in removing and storing carbon dioxide at scale while delivering a range of additional environmental benefits, such as biodiversity gain, air quality and soil health.

The Climate Change Act 2008 allows the Government to purchase off-sets or other traded instruments to set towards our emission reduction targets. The Government do not currently intend to purchase off-sets to set towards our carbon budgets, although they have retained the option to do so in future, if appropriate. I can see that I shall never manage to reassure the noble Baroness, Lady Jones.

5.30 pm

Amendment 130B is also in the name of the noble Baroness, Lady Worthington. The Government have already taken action on carbon removals to help to provide certainty to investors. In the net zero strategy, the Government set out an ambition to deploy at least 5 megatonnes of carbon dioxide equivalent emissions per year of engineered greenhouse gas removal methods by 2030. In July, we launched a consultation on potential business models to unlock private investment and enable greenhouse gas removal technologies to deploy at scale over the next decade. This consultation explored options for business models with the aim of addressing the absence of a predictable revenue stream for negative emissions, which has been identified as one of the key barriers to investment. The consultation also sets out our proposed approach and next steps relating to the monitoring, reporting and verification of greenhouse gas removals. The consultation closed on 27 September and we intend to provide a response in due course.

I hope that the noble Baroness and others are reassured by the action that the Government are taking. I therefore ask her to withdraw her amendment.

Baroness Jones of Moulsecoomb (GP): Could I just point out that it is easier not to send loads of CO_2 out into the atmosphere in the first place? It is great to hear about all the millions that the Government are spending on these measures, but it would be cheaper not to pollute in the first place. Things such as carbon capture and storage are all incredibly theoretical ideas, so you cannot actually say that it is going to happen, because it may not.

Baroness Randerson (LD): My Lords, I thank all those who have taken part in this short debate. I knew that I would provoke a debate by specifically mentioning hydrogen—and that was my intention. I wanted to tease out the Government's views. I thank the Minister for her response, but it was light on detail as, I fear, the whole of the Government's policy is.

I agree with the noble Baroness, Lady Jones, on her view of the Government. I fear that the Government have been so self-obsessed for the past two or three years that there is a policy vacuum in all sorts of places, and transport is one of them. I also agree with her that we need to rely very much more on public transport but, of course, the vast majority of public transport is provided by buses, which are heavy vehicles. Electricity is fine in towns and cities but it is not yet the answer for long distances in rural areas or for long-distance buses. Of course, not enough of our electricity is green and comes from renewable resources. Despite the ingenious plans for the national grid, we have a crisis of capacity, which will face us very soon if we all rely on electric vehicles.

The noble Lord, Lord Whitty, referred to aviation. I remind noble Lords about the Government's jet zero strategy, which is a triumph of optimism over reality.

My noble friend Lady Sheehan made a very important point about batteries. It is important to emphasise that we are well behind in the international race for developing gigafactory capacity. Very soon, rules of origin will be a problem for those wishing to export.

Lord Callanan (Con): I do not know what the noble Baroness is doing; she is supposed to be deciding whether she will withdraw her amendment, not responding to a debate. This is not a debate on general activity relating to hydrogen. She should say whether she wants to withdraw her amendment—that is the question.

Baroness Randerson (LD): My Lords, in Grand Committee it is normal to allow people the courtesy to respond to well-made points from noble Lords. I want to make it absolutely clear that the intention of my amendment was to provoke debate. I am disappointed that the Government's response has been so limited. The amounts of money announced by the Minister are attractive and worth while, but they need to be multiplied by at least 10 to have any impact at all.

I will withdraw the amendment, of course, but I remind noble Lords of the words of the United Nations Secretary-General:

"We are in the fight of our lives, and we are losing"—

we need a sense of urgency. I withdraw my amendment.

Amendment 124A withdrawn.

Clause 108: Modifications of the gas code

Debate on whether Clause 108 should stand part of the Bill.

Member's explanatory statement

This would remove provision for hydrogen grid conversion trials for domestic heating and cooking.

Baroness Jones of Moulsecoomb (GP): We have discussed the issue of hydrogen, so I will delight your Lordships by saving my voice. I do not intend to speak on whether Clause 108 should stand part of the Bill.

Baroness Worthington (CB): My Lords, I added my name to the Clause 108 and Clause 109 stand part notices and to Amendment 125 in the name of the noble Lord, Lord Teverson.

We have had wide-ranging debates but, when it comes down to the content of the Bill, the most egregious elements are possibly these two clauses. It seems absolutely incredible that we should require people to enter into a trial for something on which multiple studies have been undertaken already. We are essentially legislating to force people to take part in something we already know the answer to. We know the answer because 32 independent studies of the use of hydrogen in heating—since 2019, so they are relatively recent—by organisations including the IPCC, the IEA, Imperial College, the Potsdam Institute, the University of Manchester, the Wuppertal Institut, Element Energy and the International Council on Clean Transportation, have all found that hydrogen should not play a role in heating buildings. Hydrogen will be hugely inefficient, compared with other clean alternatives and gas, in terms of pure energy efficiency, damaging to health and dangerous. That should be enough evidence for the Government to rule out this unnecessary trial.

I honestly believe that this is a consequence of a huge amount of lobbying coming from the incumbents in the industry, including those who today manufacture gas boilers, produce gas and move gas around in the networks. What they fail to mention is that it is not as simple as just switching over to hydrogen: you have to replace virtually everything to be able to burn hydrogen at high levels. Yes, of course, you can burn very low levels, but who wants low levels? We are talking about a net-zero strategy in the next 25 years; you cannot afford to go through increments of 20% hydrogen and 30% hydrogen—it is simply not credible. It will do exactly what we saw in the co-firing of biomass in coal-fired power stations; it keeps the incumbents going for longer, keeps their investors and shareholders happy, and gives them an answer to the question, "How are you going to make your business compatible with climate change?". It is a glib answer. It is not a full answer—in fact, it is false—but it is an answer none the less. That is why we are being forced into considering this, even though the evidence is absolutely clear that this is not the answer.

If I were a resident living in one of these poor villages—the villages of the damned, as I like to call them—I would be absolutely up in arms at the prospect of being forced into this egregious position in which I am asked to take this technology, which will be more expensive, less beneficial for my health and more damaging to the climate compared with other alternatives. I fully support the withdrawal of the two clauses; the Bill would be vastly better if we got rid of them. I am very grateful to the noble Baroness for tabling this.

Lord Teverson (LD): My Lords, I particularly support the proposal to take out Clauses 108 and 109. I did not put my name to that, but it seems the obvious solution. As the noble Baroness, Lady Worthington, said, we have all been on the receiving end of massive lobbying by the hydrogen lobby. I will not go into hydrogen extensively, but clearly there are areas where hydrogen will need to work. It will be important in some energy-intensive industries and some long-term transport solutions, but we seem to have overreached in terms of those applications.

For heating, it just cannot make sense to use green hydrogen, which would have to be produced by renewable electricity, as electricity could be used anyway. Scientifically and in terms of the laws of physics and efficiency, it does not make sense. Heating is an important area—as we said, it represents some 40% of UK emissions—so surely it must be electrification directly, geothermal technologies or air source heat pumps, as we have discussed before. That is why I think these clauses not standing part is the best solution. If that is not agreed, I thank the noble Baroness for supporting my amendment; the noble Lord, Lord Lennie, has a similar one. This should not be compulsory and those consumers should be very aware of all the other repercussions.

My second amendment, Amendment 126, is less important. As with previous amendments, it just makes sure that only people who really benefit from these trials should have to pay for them and that those who do not should not. I do not understand how BEIS and the Government have become the victims of the lobbying that takes place.

Finally, perhaps I can cite a gentleman whose work I have been reading, Jan Rosenow. He takes his statistics from BEIS's *Hydrogen Production Costs 2021* and Ofgem's wholesale market indicators. He is very clear that, depending on how you look at the timescale between now and 2050, hydrogen will cost three to 11 times more than fossil fuel gas at its present levels. Clearly, this is not an acceptable solution or route for decarbonisation.

Lord Lennie (Lab): My Lords, these amendments relate to Clauses 108 and 109—Chapter 2 in Part 3—on hydrogen grid conversion trials, covering modifications of the gas code and regulations for the protection of consumers. The background to this is that in 2021 the Government launched a consultation on facilitating a grid conversion hydrogen heating trial. The Government's *Ten Point Plan for a Green Industrial Revolution* sets out the ambition to support the industry to deliver hydrogen neighbourhood and hydrogen village trials by 2025. This consultation sought views on proposals to legislate to allow gas distribution network operators to carry out activities needed to deliver a grid conversion.

It would be unfair to say that the Government did not alert people to the complexity of the trial, because the consultation document announced that it involved replacing gas supplies with hydrogen in consumers' premises. It also said:

> "Existing in-home appliances and devices such as boilers and meters will need to be replaced with hydrogen-compatible equivalents. Pipework may need to be replaced if it is not already suitable for hydrogen. Additional internal work may also be required to make the property 'hydrogen-ready'."

On the face of it, the Government understood the complexity. They also said that the trials would be carried out by the gas distribution network operators in partnership with local authorities, and that, in the trial of hydrogen, safety

> "will be of paramount importance"—

[Lord Lennie]
that is good news—with the Health and Safety Executive being consulted and involved in any measures of conversion.

5.45 pm

The Government responded to the consultation in April 2022, saying that the majority of the responses were "broadly supportive" of their proposals and that, following the consultation and a review of the relevant legislation, they intended to proceed with the proposed legislation, which we now have before us.

Unlike those who are against the clauses standing part, we are not entirely against the trials. We believe that the complete overhaul of the gas system required for hydrogen grid conversion is not the best option for most homes. As the noble Baroness, Lady Worthington, said, you can blend up to 20% hydrogen with gas in our current system without having to change all the pipes and boilers, but with any more than 20% you have to rip out everything and basically start again, which is probably what these trials would require.

For most households, the low-carbon heat scheme, and primarily heat pumps, would be a far preferable option. Our Amendment 127 would therefore ensure that no household would be forced to take part in the trial. Instead, households would be given an alternative heating solution by the gas transporter, the DNO. This approach also fits in with our Amendment 119, which would require the Secretary of State to provide a plan for low-carbon heating in homes where it is uneconomic or unfeasible to have a heat pump. These are homes where we would support hydrogen grid conversion. Therefore, we do not stand against the trials entirely.

Lord Callanan (Con): I will start with Amendments 125 to 127; I thank the noble Lords, Lord Teverson and Lord Lennie, and the noble Baroness, Lady Blake, for their contributions and for promoting them. The amendments relate to Clause 109, which, alongside Clause 108, will ensure the safe and effective delivery of a village-scale hydrogen heating trial. This trial will gather evidence to enable the Government to make strategic decisions on the role of hydrogen in heat decarbonisation. I know that there are very strongly held opinions on whether hydrogen is the correct solution, but we will never know unless we do the appropriate research and trials.

Baroness Worthington (CB): No.

Baroness Jones of Moulsecoomb (GP): That is not true.

Lord Callanan (Con): Let me finish, then the noble Baroness, Lady Worthington, will be able to come back.

I will start with Amendments 125 and 126. With Amendment 125, the noble Lord, Lord Teverson, calls for an adequate level of information to be provided to consumers in the trial area concerning safety, long-run bill impacts and opting out of the trial. I agree that these are important issues. Support from local people will be crucial to the success of the trial, and gas transporters are already working closely with communities in the potential trial locations. In fact, the relevant Members of Parliament have already been in touch with me, and I already have meetings in my diary to talk with them and residents from the local areas about this.

Steps have already been taken to ensure that people have all the information required to make an informed choice about whether they wish to participate. Both gas transporters have opened demonstration centres in the two shortlisted local communities to raise awareness of what the trial would involve.

Clause 109 provides the Secretary of State with the power to require the gas transporter running the trial to take specific steps to make sure that consumers are properly informed about the trial. In meeting their responsibilities to inform consumers, we fully expect gas transporters to provide clear information about each of the important topics listed in the noble Lord's amendment.

I turn to Amendment 126. The Government have been very clear that no consumer in the trial location should be financially disadvantaged due to taking part in the trial. Last year, the Government published a framework of consumer protections that will underpin the trial. Consumers in the trial location will not be expected to pay more for their heating than they would if they had remained on natural gas or to pay for the installation and maintenance of hydrogen-capable appliances.

The village trial will be paid for through a combination of government and Ofgem funding and contributions from the private sector. All gas consumers pay a very small amount towards Ofgem's net-zero funding for network companies, which supports projects to decarbonise the energy sector; that includes this trial. All gas consumers will benefit from well-informed strategic decisions on how to decarbonise the way we heat our homes.

I hope that I have been able to reassure the noble Lord that the important issues he has raised, about which I agree with him, are already effectively addressed by the Bill, and therefore that he feels able not to press his amendments.

I move on to Amendment 127 in the names of the noble Lord, Lord Lennie, and the noble Baroness, Lady Blake. As I have said, local support will be crucial to the success of the trial. Gas transporters are already working closely with communities in the potential trial locations to develop an attractive offer for people who want to convert to hydrogen. However, we understand that not everyone will want or be able to connect to hydrogen, and the Government are clear that nobody will be forced to do so. The gas transporter running the trial will have to provide alternative heating solutions and appliances for people who do not take part in the trial. In May 2022, this requirement was clearly set out in a joint letter from BEIS and Ofgem to the gas transporters, alongside the other requirements that must be met before any funding is provided for the next stages of the trial. The gas transporters will need to demonstrate that they have a viable plan for providing alternatives to hydrogen. There is already an effective way to ensure that they provide alternatives to hydrogen, through the Government's funding requirements.

We therefore do not believe that this amendment is necessary. I fully appreciate the noble Lord's intention—which I share—to ensure that the trial is conducted properly, with alternative heating systems offered to people who do not take part. With that information, I hope he feels reassured that there are already steps in place to ensure this and will therefore feel able not to move the amendment.

I will say a few words about the stand part notices on Clauses 108 and 109. I know that the noble Baronesses, Lady Jones and Lady Worthington, and my noble friend Lord Moylan, who is not here now, have registered their intention to vote against these clauses. I have already established that the overall intent of these clauses is to support a safe and effective trial for hydrogen heating.

Clause 108 allows the Secretary of State to designate a hydrogen grid conversion trial, ensuring that both this clause and Clause 109 are narrow in scope and would apply only for the purposes of such a trial. Importantly, the clause expands the duty to participants of the gas transporter running the trial to undertake the required work without charge. It also makes certain modifications to the Gas Act 1986 to build on existing provisions concerning powers of entry. This will ensure that the gas transporter running the trial has clear grounds to enter private properties to: carry out any essential works, including replacing appliances and installing and testing safety valves; undertake inspections and tests for the trial, such as safety checks; and safely disconnect the gas supply in a property.

It is important to emphasise that gas transporters already have powers of entry into properties through the Gas Act. We are merely extending these powers in a very limited way to conduct the necessary work to set up and deliver the trial. Gas transporters will only ever use these extended powers as a very last resort once all other attempts to contact property owners and reach an agreement are exhausted. The existing rules on powers of entry requiring a gas transporter to obtain a warrant from a magistrates' court will continue to apply, of course. I reiterate once again that nobody will be forced to use hydrogen. I have already covered the plans for alternative arrangements in my comments on the amendment earlier.

Finally, I draw noble Lords' attention to the fact that the majority of responses to the public consultation the department ran last year on facilitating a hydrogen village trial were broadly supportive of our proposals to change legislation in this way. I therefore urge that Clause 108 stands part of the Bill.

Clause 109 provides the Government with the powers to establish consumer protections for people taking part in this world-leading hydrogen village trial. It will do this by giving the Secretary of State two delegated powers to make regulations which require the gas transporter running the trial to follow specific processes to engage and inform consumers about the trial, and ensure that consumers are protected before, during and after the trial.

The department is of course working closely with the gas transporters as they develop their plans for consumer engagement and protection. It is worth saying that there is quite a bit of support in these communities for the trial. The council leaders in the areas concerned have expressed their support and one MP in particular is actively campaigning for their area to take part in the trial. Opinion is obviously mixed in both communities, but we want to make sure that it has the maximum level of support required. I have already highlighted the importance of consumer engagement and support in my earlier comments. Regulations made under this clause will ensure that people will have all the information required to make an informed choice about whether they wish to participate.

The second power in this clause, to introduce regulations for consumer protections, will work alongside existing protections such as the Consumer Rights Act 2015 and the Gas (Standards of Performance) Regulations 2005. This recognises that it is a first-of-its-kind trial and will allow the Government to introduce additional protections for consumers in the trial area. These might include regulations to ensure that consumers are not financially disadvantaged by taking part in the trial.

I am sure that all noble Lords will agree that these provisions, which—as I said, again—were well received by stakeholders when we consulted on them last year, are crucial to ensure the fair treatment and protection of people in the selected trial area.

Lord Lennie (Lab): The Minister said that no one would be forced to take part in the trial. I appreciate that but, first, it seems like the place for that statement to be made is within the Energy Bill. Secondly, will they be given an alternative low-carbon solution?

Lord Callanan (Con): The answer to both of those questions is yes. No one will be forced to take part in the trial. If they do not take part in the trial, they will of course be given an alternative low-carbon solution.

Lord Teverson (LD): Can the Minister clarify what areas are being looked at? I have seen Redcar, Whitby and Fife being looked at as potential areas. Are those agreed? Is the number roughly three and when are those locations likely to be confirmed?

Lord Callanan (Con): There is already a small-scale trial in Fife in Scotland. There are two shortlisted villages, Redcar and Whitby—on the west coast, not Whitby on the east coast. They have been shortlisted for the trial and we will make a decision on the basis of submissions from both communities in the new year.

Baroness Worthington (CB): My Lords, I respond on behalf of the noble Baroness, Lady Jones, on the stand part notice that we have both signed. I thank the Minister for his response. To be honest, because I am so clear that this should not form part of the Bill, I have not gone through all the detailed provisions in these two clauses. The Minister seems to be saying that there is an absolute right of refusal, but my reading of both clauses is that the emphasis is that required information must be provided. There might be protections from financial penalties—that is implied when it talks about protecting consumers—but I cannot see it written down anywhere that the regulations will enshrine the consumers' right of refusal.

[Baroness Worthington]

I would be grateful if the Minister would undertake to write to us on this because this seems like a scheme where the fox is being put in charge of the henhouse. The gas transporters are the interlocuters between the poor people living in these villages who are going to be told that this is the great answer to their climate change concerns. Will they provide adequate information about safety? You are at least four times more likely to have an accident with hydrogen; it has been verified.

I take issue with the Minister's characterisation of this as being a matter of opinion where "some people think this" and "some people think that". It is not true. This is clear physics and chemistry. It is more likely. You may get slightly more frequent accidents at a lower explosion rate, but that does not reassure me in the slightest. Peer-reviewed scientific studies have taken place and we do not live isolated from the rest of the world. Other countries have tried this. There have been countless trials and there have even been studies in this country. This is not a safe way of proceeding. It needs to be made categorically clear that independent advice should be given to these villages, not advice given by the gas transporters which, of course, have a huge, vested interest in this going ahead.

I am afraid that I am in no way assured by the responses I have received. I certainly would not want to be living in one of these villages. I would not want hydrogen anywhere near my home. I will continue to advocate on that basis. I will not press my objection to this clause at this stage, but I am sure that we will return to this on Report. This is going to get—and needs—a lot more scrutiny. A lot more independence needs putting into the process, and it needs a rethink.

6 pm

Lord Callanan (Con): Let me just respond to the noble Baroness's point and reiterate once again that nobody will be forced to take part in these trials. There is extensive information available. As I said, there are campaigns in some communities which want to take part in the trials. At least one MP in one of the areas is campaigning for it, and both council leaders have been contacted by officials and are supportive of it. Obviously, people want reassurance and more information; that will happen.

The noble Baroness's other point about health and safety is crucial. I actually agree with her that, potentially, hydrogen is dangerous. Natural gas is also potentially dangerous, but we have mitigated the safety concerns of that. We will want to make sure that the HSE is involved in studies as well, and we will not do anything to put anybody at risk or do anything that will prejudice their safety. That goes without saying, and there are extensive studies taking place.

I also have some scepticism about the potential use of hydrogen for home heating, but I believe that we should do the trials to assure ourselves one way or the other where the truth lies, and whether the existing network can be repurposed easily, simply and cheaply for hydrogen. We do not actually know the answers to those questions until we do the studies, and that involves doing a trial to find that out.

With those reassurances, once again, let me reassure noble Lords that nobody will be forced to take part in these trials. Everybody will be provided with the appropriate information, and nobody will suffer any financial loss because of it, but I believe that it is worth pushing ahead with these trials.

Baroness Worthington (CB): Would the Minister point to where in the Bill it states that there is a right to refusal and consumers can object? It should be stated up front in the legislation so that the regulations are clear.

Lord Callanan (Con): I am giving the noble Baroness that assurance now, and it will be in the regulations. I am happy to put it in writing, if she wishes. It is not in the Bill, because that is not the place for secondary regulations. The Bill provides the principles and the powers for the Secretary of State. Of course, when we make the regulations, there will be further potential for that to be discussed both in this House and in the House of Commons, and I am sure that it will be.

Baroness Jones of Moulsecoomb (GP): The Minister mentioned having meetings. Has he actually met scientists, who know more about this than do people involved in financing the scheme?

Lord Callanan (Con): I have met a lot of people to discuss these schemes.

Baroness Jones of Moulsecoomb (GP): Scientists?

Lord Callanan (Con): I know that the noble Baroness, Lady Jones, has her very passionate views, but there are lots of alternative views out there as well. We are saying that it needs to be properly looked at and studied on the basis of evidence—I know that the Greens are sometimes not big on evidence, but we believe that policy should be properly evidenced and studied. That is why we think that it is important that we should do these trials.

Baroness Worthington (CB): With a Bill of this magnitude, if we are saying that it is a principle that there is a right to refuse, that principle should be in the primary legislation. That is where you put principles—and then the details can be worked out. Nothing in the Bill says that consumers have the right to refuse. I am sure that we are going to revisit this, as it is fundamentally important that principles are enshrined in primary legislation.

Lord Lennie (Lab): Can I briefly support that? The place to put it is under protection of consumers in the Bill. There is a clause entitled "Regulations for protection of consumers", and the right not to take part in the trial would be one of those protections.

Baroness Sheehan (LD): I completely agree with the noble Lord, Lord Lennie, and the noble Baroness, Lady Worthington, on this—but could I ask the Minister a separate point about how the trials will be carried out? The Minister said they were going to provide evidence. I want to ask how long the trials will last. One of the issues with hydrogen, if I understand it, is

its impact on the pipes that carry the gas to the boilers, et cetera. Those pipes perish in time, because the hydrogen makes them brittle in a way that natural gas does not. Of course, that will lead to cracks and leakages. Will the trial take place over a long enough period to see whether that is indeed the case and what the jeopardy from those pipes might be?

Lord Callanan (Con): Let me reiterate once again. Noble Lords are getting involved in the detail of what these trials will comprise—timescales, consumer protections, et cetera. This Bill is about giving the Secretary of State the powers to make the regulations, which will then come back this House, when I am sure that we will have a massively long and involved discussion about all these precise and important details—but this Bill is not the place.

Lord Teverson (LD): In defence of my noble friend, I think it is reasonable to ask the Minister to come back and give us an indication of the length of the trials. He must know that, and that would be a very useful bit of information.

Lord Callanan (Con): The initial intention is for them to last two years, but we will want to come back and look at all these details on the basis of proper scientific evidence.

Clause 108 agreed.

Clause 109: Regulations for protection of consumers

Amendments 125 to 128 not moved.

Clause 109 agreed.

Committee adjourned at 6.06 pm.