



House of Commons

Science and Technology  
Committee

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**Government Response  
to the Committee's  
Seventh Report,  
Session 2002-03: Light  
Pollution and  
Astronomy**

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## The Science and Technology Committee

The Science and Technology Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Office of Science and Technology and its associated public bodies

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# First Special Report

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On 6 October 2003 the Science and Technology Committee published its Seventh Report of Session 2002–03, Light Pollution and Astronomy. On 11 December we received a memorandum from the Government which contained a response to the Report. The memorandum is published without comment as an appendix to this Report.

## Appendix

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### Introduction

The Government welcomes the Committee's report on light pollution and astronomy.

The Committee's recommendations touch on the work of several government departments and this response has been produced jointly by the Department for Education and Skills (DfES), the Office of the Deputy Prime Minister (ODPM), the Department for Environment, Food and Rural Affairs (Defra), the Department for Transport (DfT) and the Office of Science and Technology/Department of Trade and Industry (OST/DTI), with contributions from the Particle Physics and Astronomy Research Council (PPARC).

This joint response demonstrates how departments can work together on a cross-cutting issue such as light pollution.

We welcome the Committee's continuing interest in science education and share the Committee's view that astronomy and space are areas of science that capture many young people's imaginations.

We welcome the Committee's focus on the use of the planning system to deal with the issue of light pollution. We believe that the Committee's report will have helped to raise awareness of light pollution with those responsible for making planning decisions.

We are pleased that the Committee's conclusion that security lighting should be designated as a potential statutory nuisance supports the results of consultations that we have carried out ourselves.

This note sets out the Government's response to the Committee's recommendations and conclusions.

### Amateur Astronomy in the UK

**1. We conclude that there is convincing evidence that many professional astronomers benefit from the valuable input made to professional astronomy by the observations of amateurs. (Paragraph 23)**

The Government recognises the small but significant contribution to research made by UK amateur astronomers. This complements the work of professional astronomers, for example in the discovery and monitoring of new and variable objects such as comets, novae, and supernovae.

**2. We believe that amateur and professional astronomers have played a valuable role in the introduction of young people into science. As Sir Patrick Moore commented "the amateur [astronomer] of today is the professional researcher of tomorrow". (Paragraph 27)**

The Government recognises the importance of giving young people access to scientists and of enabling scientists from universities and industry to support teachers in their efforts to make science relevant and exciting for young people. One way that we demonstrate our commitment to this is through the Science and Engineering Ambassadors Scheme, which provides opportunities for science practitioners from industry to work with science and design and technology students in schools.

We do also recognise the valuable role amateur and professional astronomers can play in introducing young people into science. This is the basis for much of PPARC's Science and Society programme, which is used to promote science. Since 1995, PPARC has given awards for 338 small projects and 15 large projects that promote astronomy and particle physics to the public. In addition PPARC has also supported professional researchers and amateur societies in their working with the public, schools and young people.

## **The study of Astronomy in the UK**

**3. Astronomy in the UK plays a valuable part in supporting the work of professionals, engaging young people in science, and producing astronomers and physicists through UK universities. It is not good enough that PPARC and the Department for Education and Skills had to pay for young people in schools to "book time" on overseas telescopes to see the night sky as it should be. (Paragraph 32)**

**4. Pupils should be able to study the night sky at school primarily with the naked eye or through a telescope rather than via a computer and the internet. (Paragraph 33)**

**5. There seems to be an acknowledgement within Government that Space is a good way to engage young scientists, but there is little real support for schools to use observing facilities in this country. The Department for Education and Skills should be supporting efforts to make the night sky available to all. We regret that it is not doing so at present. (Paragraph 34)**

DfES and PPARC are each investing around £600,000 over the next three years in the National Schools Observatory/Dill Faulkes Telescope project. The project will give schools online access to three world class research telescopes: the Liverpool Telescope in the Canary Islands and the two Faulkes Telescopes located in Hawaii and Australia. It will also create a whole resource on space and astronomy with online activities linked to observing the night sky with the naked eye and encouraging students to visit local observatories. The opportunities presented by this project complement the local experiences that are available to young people to observe the night sky from the UK by the use of binoculars and smaller telescopes. It is recognised however, that observing in the UK is hampered by weather and light pollution.

We believe that science teaching and learning can be enhanced by giving students access to the same cutting edge technology as used by professional scientists. Students from different schools will be

able to observe different parts of the sky, logging their observations to make an important contribution to astronomical research – real science in real time.

PPARC also funds space science projects for young people through its Science and Society Awards Schemes. It has funded the schools' programmes of the University Observatories' and the Astronomical Societies' work with teachers and young people, and has occasionally supported schools' own projects. Additionally PPARC's Astronomy and Technology Centre in Edinburgh holds regular public observing sessions, or so-called 'star parties'.

The Government agrees with the Committee that the study of space plays an important role in enthusing more young people to study science subjects post-16 and that both amateur and professional astronomers have an important role to play in this. DfES is working closely with colleagues at the British National Space Centre (BNSC) and PPARC to explore ways in which we can enable teachers to use the excitement of space to inspire their students about science and involve them in cutting edge research on space and astronomy.

As a starting point, the BNSC partnership and PPARC have produced an excellent set of education resources on Mars Express and the Beagle 2 Lander. These education materials were launched by Charles Clarke and Lord Sainsbury. They are linked to the National Curriculum and will enable science teachers to explore with their students the science and technology behind this ground breaking event for UK science.

**6. We regret that PPARC and the Government have adopted a defeatist attitude towards light pollution and astronomy in the UK. There are substantial numbers of amateur astronomers, astronomy undergraduates and postgraduates and professional astronomers observing in the UK. Amateur and professional astronomers have undertaken a dual role of showing and explaining the night sky to students, pupils and the general public, whilst campaigning for the last ten years to prevent further degradation of the night sky. It is time they receive support from PPARC and the Government. (Paragraph 40)**

**7. There is a real opportunity of using the enthusiastic astronomy community to increase the numbers of school pupils taking astronomy and continuing into physics. PPARC and DfES together should bring to bear more pressure on ODPM and DEFRA to find a way to protect the skies, particularly around those observatories who work with local schools. (Paragraph 41)**

The Government recognises the adverse effect that light pollution has on amateur astronomy and the public's enjoyment of the night sky and the potential impact it may have on education. The government departments with responsibility for planning and lighting, namely ODPM, Defra and DfT, are aware of the issue and are considering measures to alleviate the problem – as described later in this note. PPARC is also willing to play its part in advising government departments on the benefits of reducing light pollution given its international experience with its own telescopes overseas. The Government's general policy on light pollution is that such issues are most appropriately dealt with by: raising awareness of the consequences of badly installed lighting; providing guidance on how those problems might be mitigated; and encouraging more effective use of planning powers.

## What is light pollution?

### **8. Reducing the amount of electricity used to provide safe and effective levels of lighting for homes, streets and public buildings must be a priority for the Government. (Paragraph 55)**

The Government is committed to the position set out in the Energy White Paper. It expects households to account for saving around 5 million tonnes carbon a year by 2010 and a further 4–6 million metric tonnes of carbon (MtC)/yr by 2020. By 2010 the Government expects a 6 MtC/yr saving to come from efficiency improvements in businesses and the public sector and believes that these sectors can deliver a further 4–6 MtC/yr by 2020.

The Government recognises that lighting is a key area where energy could be used more efficiently. For example, street lighting accounts for a significant proportion of the energy used by highway authorities, as discussed further in our response to recommendation 17.

Measures already in place have put the government on track to deliver the 6 MtC/yr savings required from business and the public sector by 2010 and to deliver 1.5 MtC/yr of the savings from residential energy efficiency required by that date. The White Paper sets out a wide range of proposals to go further and to deliver the remaining 3.5 MtC/yr from households required by 2010. Although no targets have been set for contributions from individual measures and technologies, it is anticipated that an extra 100 million energy saving lights, beyond the 60 million already anticipated by 2005, could be installed by 2010, saving 0.5MtC/yr.

The Government has undertaken to publish an implementation plan early in 2004 setting out how it will deliver the energy efficiency strategy set out in the White Paper. The Government will then report annually on progress towards achieving the savings they have set out. The Government is also committed to reviewing the Climate change Programme in 2004, providing an opportunity to review progress and to strengthen measures, if it is thought necessary to keep it on track towards its goal of a 20% reduction in carbon dioxide emissions below 1990 levels by 2010.

### **9. The adverse effects of light pollution on energy consumption are both undisputed and a source of much disquiet and annoyance for large parts of the population. The Government fails to take the issue seriously and does not consider light pollution in its full context—with its effect on everyone. (Paragraph 57)**

The Government notes the Committee's evidence that energy could be saved if unnecessary commercial and domestic lighting were switched off and street lighting changed. This is why Government activity focuses on changing behaviours through awareness raising, upgrading existing public lighting where practicable and the use of the planning regime or issuing of guidance to address light pollution. Furthermore, the Government does take light pollution seriously as evidenced by the actions detailed elsewhere in this note.

## Evidence of deterioration

**10. We are disappointed by the inconsistent approach by the Government on the issue of light pollution. We hope that the more realistic attitude adopted by Lord Rooker is the true reflection of the Government's approach. The Government should not dismiss the compelling evidence of the satellite images of the United Kingdom, which clearly show an increase in light pollution in both rural and urban areas. (Paragraph 67)**

## Not just a UK problem

**11. Those who have spent a lifetime studying the night sky have charted its deterioration and have now joined forces with environmental campaigners, astronomers in other countries, and also with those members of the general public, increasing in numbers, who have experienced the adverse effects of the increasingly badly lit environment. We are in no doubt that light pollution is getting worse. We recommend that the Government acknowledge this fact and give a commitment to taking serious action to tackle this problem, as other governments have proved it is possible to do. (Paragraph 70)**

The Government recognises there has been an increase in light pollution as a result of external lighting used for a wide range of purposes. The satellite photographs are indicative of this although we note that there is some doubt about the magnitude of the increase, and the amount due to light emitted directly upward. As the Campaign to Protect Rural England's report 'Night Blight!' acknowledges, the light recorded by the satellite imagery is a combination of directly emitted light and light reflected from illuminated surfaces such as roads. Changes in the periods when lighting is in use will also be recorded and may be contributing to the increase.

## The need for lighting

**12. We consider that whilst the role of efficient and well positioned street lighting in reducing accidents has been proven, the evidence relating to the correlation between lighting and crime is not conclusive. This link is outwith the remit of our inquiry, but is an area that merits further research. We look forward to seeing what new evidence the Government has received on the role of lighting in the reduction of crime when its good practice guidance "planning out crime" is published later this year. However, we believe that the impact of lighting on crime should be only one of a number of factors that is considered in the determination of Government policy on lighting. (Paragraph 74)**

The Good Practice Guide to planning out crime, which will be published early in 2004, aspires to be an evidence-based approach to demonstrate how the planning system has helped to deliver sustainable environments. However, in doing so it recognises that the evidence is not always clear-cut and there are tensions between what is best for crime prevention and what would be best for other concerns of sustainable development. Therefore the guide—including the section on lighting—builds from an understanding of the principles of crime reduction and good design, and provides pointers on to how these principles may be applied to suit the local context.

The main evidence used in the lighting section of the guide is a 2002 research study prepared for the Home Office—*Effects of improved street lighting on crime: a systematic review* (Farrington D & Welsh B, 2002). This study indicated that improved lighting had a greater impact on crime reduction than CCTV.

## Street lighting

**13. We welcome the fact that both the Department of Transport and the Highways Agency have given due consideration to the issue of light pollution. The Highways Agency has shown forward thinking in its gradual replacement of luminaires, and in giving environmental considerations top priority. It should be congratulated for its work with the lighting industry and with the Department for Transport's Lighting Board, to improve the efficiency of lighting throughout the UK. It should continue to work with local authorities to "spread the word" about light pollution and the benefits of High Pressure Sodium lighting. We look forward to viewing the results of various research projects into the effect of light pollution that the Agency has contributed to. (Paragraph 82)**

The Government welcomes the Committee's acknowledgement of the Department for Transport's and the Highways Agency's consideration of the issues of light pollution. For the motorway and trunk road network, the operation of which has been delegated to the Highways Agency, the aim is to further reduce light pollution through the steady replacement of low-pressure sodium lighting by better controlled light sources, utilising latest viable technology. This will be achieved as lighting is renewed.

The Highways Agency will continue to liaise with local authorities through its work with the UK Lighting Board, and other groups where local authorities are represented. It will also share the results of its own research projects aimed at further reducing light pollution and energy consumption. It will also look to reduce daytime visual/ environmental impact, and question convention.

The UK Lighting Board provides a forum for the Department for Transport, the Highways Agency, and the devolved administrations in Scotland, Wales and Northern Ireland and London to develop and promulgate good lighting practice in conjunction with local authorities, the lighting industry and the lighting profession through the Institution of Lighting Engineers (ILE).

**14. The Government must act now to ensure that every local authority about to invest in new street lighting is well informed of the properties of modern luminaires and the issues of light pollution. If the Highways Agency, backed by the Department of Transport, has taken a policy decision to use high pressure sodium lighting, with full cut off and shallow bowl luminaires in its own replacement of street lighting, then the Government should issue clear guidance to local authorities that these types of lighting are believed to be the most suitable lights available at this time. British Standards codes of practice and guidance should be updated accordingly. (Paragraph 88)**

**15. Firm guidance and direction must come from the Government on this issue. Relying on piecemeal guidance, published some years ago, to inform important local decisions such as the**

**replacement of the street lighting systems is not an acceptable attitude from the Government which is spending £380 million on this project. (Paragraph 89)**

We believe there is a good level of understanding of light pollution by lighting engineers in local authorities. When authorities are installing new street lighting, they will generally look towards specifying high pressure sodium lighting with good light control.

The Government does not set standards for lighting on local roads; that is for British Standards. But the Government does expect published British Standards for road lighting to be followed. Development of British Standards, or the UK's input to the development of European or International standards, is through the British Standards Institution (BSI). BSI is a Royal Charter body and is independent of Government but it acts as the UK's national standards body and indeed is one of the world's leading standards bodies.

Standards are developed in technical committees, whose membership is voluntary. BSI is careful to ensure that the composition of such committees impartially reflects the interests of stakeholders including, in particular, of business and the relevant government department(s). Delegations from the national committees then represent in the UK in the wider European or international fora. The standards themselves are agreed through a process of consensus

Publication of a European Standard for road lighting is imminent and a revision of the British Standard should follow. The European Standard is expected to include classifications for installed lighting equipment with restrictions on the amount of light emitted directly upward.

Sound guidance exists on measures to minimise light pollution, including the ILE's guidance notes and 'Lighting in the Countryside'. The Government accepts that the latter is not recent, although the advice and guidance is still valid. The response to recommendation 22 refers to consideration being given to updating it

**16. Local authorities which have not already invested in new lighting must be strongly advised to install High Pressure Sodium lighting, the design of which should be shallow bowl or fully cut off lighting as appropriate. Local authorities should also be required to follow ILE and CIE guidelines when deciding where to install Full Cut Off lighting, with an obligation to protect observatories, dark rural areas and parkland within their jurisdiction. (Paragraph 90)**

The Government cannot require local authorities to follow guidelines and advice; that would need regulation. It is for local authorities to follow guidelines and advice depending on the local circumstances and in accordance with their general responsibilities and duties. In practice we believe there is a good understanding within local authorities, the lighting industry, and the lighting profession, of the causes of light pollution and the solutions.

An important source of guidance is the ILE's 'Guidance Notes for the Reduction of Light Pollution'. The notes provide sound guidance on good practices to reduce light pollution including using full cut off lighting. Recommendations are included for light limitation in different types of environments including intrinsically dark areas such as National Parks.

We believe this and similar good practice guidance are generally followed by local authorities when new or replacement street lighting is being considered. As a result, we do not believe regulation is necessary

**17. We remain unconvinced that modernising street lighting alone will bring significant energy savings, but with pressure from Government, the lighting industry will respond to the need to provide more energy efficient and less light polluting luminaires. Whilst energy saving targets are important, the Highways Agency and local authorities must ensure that luminaires under their control only direct light where it is needed in order to start a trend in the reduction of light pollution. (Paragraph 91)**

All highway authorities should be seeking to reduce energy usage and costs. As street lighting accounts for a significant proportion of the energy used by authorities, it should be readily identified as an area subject to examination for cost reduction.

But the general replacement of low pressure sodium light sources by high pressure sodium units does not naturally help this process. Although low pressure sodium sources lead to less efficient optical performance, it is a more energy efficient source than others which do allow better light control in lighting equipment designs.

We must be realistic, therefore, in expectations for both improved street lighting quality, reduced light pollution, and energy reduction. In many cases it may be possible to reduce the intensity of street lighting and obtain resulting reductions in the amount of energy used. But this must not be to the extent that the lighting fails to perform as intended in aiding movement for all road users, reducing accidents, and helping to create an environment that is pleasant, interesting and safe.

Better light control, the avoidance of over-lighting, and good design generally should at the very least mean that improved lighting quality need not increase energy costs.

For their roads, the Highways Agency will be looking towards the use of modern technology and the consideration of 'switch on' times and 'minimum necessary' lighting levels to reduce further the energy consumption of its road lighting installations. Experience leading to changes and improvements in operating practices will be shared with other highway authorities.

The Highways Agency is already acting to direct light only where it is needed. We expect other highway authorities to take similar action when they are replacing lighting. The Government's provision of PFI credits for street lighting modernisation is aiding this process.

## Other main causes

**18. It is clear that there are significant potential energy savings to be made in the area of security lighting by reducing the amount of light pollution emitted from them. (Paragraph 94)**

The Government is committed to improving energy efficiency, as described in our response to recommendations 8 and 9. To promote this policy, the Government funds the Energy Savings Trust and the Carbon Trust:

The Energy Saving Trust provides advice and assistance to householders and small businesses through its funding of Energy Efficiency Advice Centres, and provides guidance on domestic and external lighting through its Energy Efficiency Best Practice in Housing Programme.

The Carbon Trust, via the action energy programme, works with businesses and the public sector to encourage energy efficiency through the identification of energy saving opportunities and help with the production of strategies for reduced energy consumption. It also produces best practice guidance on a range of subjects including external lighting.

**19. Whilst it is possible to angle 500w security lights correctly, we consider that for normal domestic purposes, they are energy-inefficient and liable to cause a nuisance. (Paragraph 96)**

The Government funds programmes to develop a high quality evidence base that supports policy development on neighbour, neighbourhood and environmental nuisance issues in the UK. The Defra Environmental Protection Newsletter 2003–4 invited contractors to bid for projects including one that would focus on the control of nuisance from security lighting

This particular piece of research aims to assess the level of complaints made to local authorities on security lighting and whether any distinctions on types of complaint can/should be drawn between decorative, amenity and security lighting. The research may also investigate factors such as the levels of illumination at which the effect might reasonably be considered intrusive, and the practicalities of measuring the intrusion caused by external artificial lighting. Defra expects to award the contract shortly and the research will run for eight months. Defra aims to publish the leaflet at the end of 2004.

**20. Whilst it is commendable that retailers have considered the issue of light pollution, leaflets inside the packaging of security lights will not alert customers to the benefits of a less powerful light before they decide which security light to buy. Providing the Institution of Lighting Engineer's Guidance on security lighting, or a version thereof, alongside the displays of security lighting would greatly assist the customer. However, it will not prevent incorrect installation of lights. Only legislation either banning the sale of 500w lights as security lighting, or the designation of light as a potential statutory nuisance will ensure that householders suffering from their neighbour's overspill of light have a remedy: we favour the control of obtrusive light through statutory nuisance legislation. (Paragraph 98)**

The Government is aware that in recent years there has been a proliferation of security lighting, both in relation to domestic and commercial properties. Providing that the security systems are correctly installed and well maintained they should not be intrusive to neighbouring properties. Therefore we do not believe that there is a case for banning the sale of security lights to the public. However, we do recognise that some security lighting may be of poor standard and may be incorrectly installed, thereby causing a nuisance.

To help deal with the growing problems caused by security lighting we are considering producing an advisory leaflet on the design, installation and maintenance of security lighting, which will provide advice on how to avoid creating this type of intrusion. The ILE already produces a valuable leaflet that contains helpful advice to homeowners. The Government believes a greater awareness and

consideration between neighbours is required and are hoping that the ILE will assist in the development of a new Defra leaflet on external (security and garden) lighting as part of the Defra funded research project mentioned in our response to recommendations 18 and 19.

In October 2002, Defra issued a broad consultation 'Living Places—Powers, Rights, Responsibilities', which considered a range of local environment issues including security lighting (issue F4 in the document). The majority of respondents to this section of the consultation, felt that the solution to nuisance lighting was not to regulate the positioning of the lighting, but for Environmental Health Officers to be given powers to deal with any resulting nuisance caused by the lighting under the existing statutory nuisance regime, Part III of the Environmental Protection Act 1990. It was generally felt that the local authority should be given the power to issue abatement notices against nuisance from security lighting, in a similar manner to its existing powers to control noise. Non-compliance would trigger an additional power to intervene and take remedial action, which could be supported by a voluntary agreement and Code of Practice guidelines.

Defra's next step is to formally respond to the recommendations made in the public consultation. This is planned for 2004 and will be available on the Defra website.

**21. Those responsible for floodlighting buildings and sports facilities and those companies lighting car parks should consider whether there is any need for lighting after 11pm or midnight. We recommend that, when giving planning permission to plans for new buildings with floodlighting, new floodlighting systems or new car parks, local authorities should impose conditions relating to the type of lights that are appropriate, how they should be positioned and the timing of the lighting to ensure it is not obtrusive to those around it and that it does not contribute to energy wastage. (Paragraph 103)**

The Town and Country Planning Act 1990 (as amended) allows local planning authorities in England to impose reasonable conditions on any planning consent they grant. Similar arrangements apply in the devolved administrations, which have responsibility for their own planning legislation. The Government recognises that conditions represent an important way in which local planning authorities can influence the design of lighting installations and mitigate their negative impacts, and it encourages local authorities to use them for this purpose.

Government guidance in 'Lighting in the Countryside' includes advice on the use of planning conditions in relation to lighting, as well as providing an example of a standard condition for sports floodlighting. The Government is considering drawing up model planning conditions for minimising the potential adverse effects of external lighting and including them in the list of model conditions in a future version of the conditions circular.

## **Current government guidance on light pollution**

**22. We recommend that the Government update "Lighting in the Countryside" to take into account its relevance to urban authorities and, bearing in mind the imminent investment by local authorities into street light replacement, republish and circulate the document accordingly. (Paragraph 108)**

The Government is pleased to note the Committee's view that 'Lighting in the Countryside' could be usefully updated. Respondents to section F4 of the recent Defra public consultation 'Living Places—Powers, Rights, Responsibilities' reported how useful current guidance in 'Lighting in the Countryside' is, but also stressed the need for it to be updated

The guidance was originally produced by the Countryside Commission, forerunner to the Countryside Agency (CA). Defra notes that DfT recommends the guidance as good lighting practice for all areas, not just rural areas. This will be made clear when the guidance is next updated. A review of the technical advice will need to be undertaken to ensure that the latest technical developments are incorporated along with the inclusion of the latest examples of best practice. Defra is liaising with CA, ODPM and DfT as to how to take this forward.

## Planning guidance

**23. Planning guidance on light pollution to local authorities lacks coherence and force. Light pollution is not tackled head on in any PPG. The response from the local authorities to those seeking protection from light nuisance is uneven and usually unhelpful. (Paragraph 116)**

## How local governments can use the current guidance to prevent light pollution

**24. There are too many local planning authorities which have not taken the issue of light pollution seriously and have not included light pollution in their local plans. The Government must take steps to rectify this. It should have a clear policy on when Full Cut Off lighting should be used, and we recommend that this policy is communicated to local authorities. (Paragraph 123)**

## The need for a new PPG on light pollution

**25. The Government should create a new Planning Policy Guidance (PPG) on Light Pollution as soon as possible and ensure that all local authorities are made aware of their obligation to include lighting in their local development plans. Local authorities must be obliged to request lighting schemes from those seeking planning permission for new developments, or changes to existing schemes. Lighting schemes must only include lights that do not shine above the horizontal. The new PPG should refer local authorities to the Institution of Lighting Engineers "Guidelines for the Reduction of Light Pollution" and the Department for the Environment's "Lighting in the Countryside" and publications by the International Commission on Illumination for further guidance. (Paragraph 127)**

## Can light pollution be subject to statutory enforcement?

**28. We conclude that the problem of light pollution can be alleviated without the need for scientific measurement of sky glow. Sky glow is just one of three types of light pollution, the cause of which is well known, and is clearly visible—particles in the air and light shining above the horizontal. Light shining above the horizontal should be tackled directly by controls on the**

**direction, position and type and duration of lighting, guidance on which should be included in the PPG on light pollution we have recommended. (Paragraph 145)**

The Government's Planning Statement 'Sustainable Communities: Delivering through planning', published in July 2002, said that existing Planning Policy Guidance (PPG) notes would be replaced with new Planning Policy Statements (PPS). The aim is to set out national planning policies for England more clearly than at present, reduce the volume and to include policy messages in only one PPS rather than repeating them in many (although cross referral may be needed).

The Government will take this opportunity to update its advice on the desirability of minimising light pollution and the tools by which this can be achieved. However, introducing a new Planning Policy Statement entirely devoted to light pollution would not meet its aim of reducing the volume of national planning guidance. The Government is looking at the form that guidance could take and is considering providing an annex to PPS23, Planning and Pollution Control, specifically on light pollution. Such an approach will send a clear signal to local planning authorities that they should take the issue of light pollution as seriously as they do other types of pollution when considering planning applications.

The Government will work with stakeholders to consider what might be included in this annex, such as the use of full cut off lighting, which would then be the subject of wider consultation. PPS23 is due to be published early in 2004 and the annex will follow it, once the work with stakeholders and the consultation is complete. The annex would have the same status as the parent PPS, and would be a material consideration in the preparation of regional spatial strategies and local development documents, and in the consideration of planning applications.

Current guidance in PPG12, Development Plans, identifies light pollution as one of the possible environmental considerations that should be taken into account when drawing up development plans and 'Lighting in the Countryside' recommends the inclusion of policies on external lighting in development plans. However, the Government recognises that at present not all local authorities have such policies, which can be a key tool for development control and can help ensure that lighting impacts are prevented or minimised. Without prejudging the consultation on the light pollution annex to PPS23, the Government would like to see advice that all local authorities should include policies within their development plans on external lighting.

## **The shortfalls on current planning guidance and implementation**

**26. The Government should afford special protection to observatories, for the same reasons that the UK Government supports the protection of UK funded observatories in the Canary Islands. Local authorities should be obliged to consult on planning applications for developments in the vicinity of observatories, which should be able to object if the development is likely to affect their observations. Observatories would be able to register with their local authority for protection, showing their active membership or links with local schools as evidence of their importance to the community. (Paragraph 133)**

The Government will consider this recommendation further as part of the proposed work on the annex to PPS23 on light pollution. This work will need to be clear about what can be defined as an observatory and what is the appropriate definition of vicinity.

However, the General Development Procedure Order 1995 (as amended) already requires that local authorities in England take into account all representations received, within a prescribed period, when determining an application for planning permission.

Where an adopted or approved development plan contains relevant policies, section 54A of the Town and Country Planning Act 1990 (as amended) requires that an application for planning permission shall be determined in accordance with the plan, unless material considerations indicate otherwise. If a development plan had policies on mitigating the negative effect of external lighting, and/or the protection of observatories from light pollution, then representations raising concern about light from a proposed development would be likely to carry more weight.

**27. We disagree that light pollution is less serious than the issue of Leylandii. Light pollution is not only detrimental to the science of astronomy, but it is wasteful of energy and causes distress to many individuals. (Paragraph 136)**

### Can light pollution be subject to statutory enforcement?

**29. Light trespass and glare affects astronomers, but it can also affect us all. We are persuaded by the evidence that light trespass is measurable and controllable. We recommend that obtrusive light should be made a statutory nuisance. (Paragraph 146)**

The Government takes all nuisance issues seriously. Such pollutants as smoke, gas, odours, dust and unwanted noise are already controlled under the statutory nuisance regime of the Environmental Protection Act 1990. Light pollution is a relatively new phenomenon, and we are considering how best to tackle this issue.

As discussed earlier, under recommendation 20, the recent Defra consultation paper ‘Living Places—Powers, Rights, Responsibilities’ looked at making external lighting (other than street lights) a statutory nuisance. If this were to be implemented, one of the challenges would be to design a feasible means of assessing external light for statutory planning control purposes. It is possible to measure light intensity, both in the laboratory when designing equipment, and in principle, in the field. However, in both cases instruments need to be calibrated and the use of field instruments and the interpretation of their results is far from straightforward. The respondents to the consultation felt there was a need for robust guidance on measurement and assessment on nuisance lighting and it should not rely on subjective judgment by an Environmental Health officer or street lighting engineer. Defra is actively considering how to take these comments forward and will publish its response to the public consultation in 2004.

### How other jurisdictions have legislated against light pollution

**30. Other countries have used restrictions on the type and duration of lighting permissible in an attempt to control light pollution. Measurement of light emission is only used in the most**

heavily regulated areas. We believe that the Government should monitor the situation in the UK carefully over the next five to ten years. Should the creation of a statutory nuisance of light, a separate PPG for light pollution and enhanced guidance to local authorities on the issue of light pollution not produce a reduction of the current levels of skyglow, the Government must consider adopting similar legislation to other countries, to control the types of outside lighting used, and to ensure that no outdoor lighting shines above the horizontal. The Government must recognise, as other countries have, that the night sky needs protecting. (Paragraph 153)

The initiatives and measures that we outline above demonstrate that the Government recognises that the night sky needs protecting and is committed to mitigating the adverse effects of artificial lighting. We believe that, by working together, government departments and stakeholders will be able to strengthen existing control in a practical way without the need to introduce additional planning legislation. At the same time we are actively considering whether nuisance caused by light might be dealt with under the statutory nuisance regime.

## Conclusion

**31. We consider that the astronomical community in this country is a particularly strong one and that it should be encouraged by the Government. Amateur astronomers not only support major professional projects through day to day observations, but also donate much of their time to introducing the general public and young people to the night sky, astronomy and through that initial interest, very often into a physics career. (Paragraph 156)**

**32. If we are to invest heavily in observatories abroad, we must also invest in the young scientists of today who will work in La Palma, Hawaii, Australia and Chile in the future. It is worth protecting the night sky for the use of astronomy pupils and students, amateurs and professional astronomers alone. However, Professor Sir Martin Rees provided an analogy when he pointed out that we may not all be ornithologists but we would miss the song birds in our gardens. (Paragraph 157)**

**33. The Government may not consider the effect of light pollution on astronomy in the UK to be a pressing issue, but amateur astronomers have taken on the issue on behalf of those who mourn the loss of the night sky, not only astronomers but also the general public, and those affected by the unwelcome intrusion of light. If the Government accepts this Report's recommendations it will start the process of reducing light pollution. In 20 years time it might then be possible for young people studying astronomy to see the Milky Way in the UK night skies once more. (Paragraph 158)**

The Government endorses the Committee's observations that amateur astronomers can make a valuable contribution to the work of professional astronomers, and that astronomy and space can be used to stimulate young people's interest in science. We recognise that light pollution has had adverse effects on observing the night sky and that there are many people who find some night lighting an unwelcome intrusion. We have explained in this note our policies for enhancing young people's experiences of astronomy and for tackling the issue of light pollution.

## Reports from the Science and Technology Committee since 2001

The following Reports have been produced by the Committee since the start of the present Parliament. The reference number of the Government's response to the Report is printed in brackets after the HC printing number.

### Session 2002–03

First Report	The Work of the Particle Physics and Astronomy Research Council	HC 161 (HC 507)
Second Report	Annual Report 2002	HC 260
Third Report	The Work of the Medical Research Council	HC 132 (CM 5834)
Fourth Report	Towards a Non-Carbon Fuel Economy: Research, Development and Demonstration	HC 55-I (HC 745)
Fifth Report	The Work of the Natural Environment Research Council	HC 674
Sixth Report	UK Science and Europe: Value for Money?	HC 386-I
Seventh Report	Light Pollution and Astronomy	HC 747-I (HC 127)
First Special Report	Government Response to the Science and Technology Committee's Fifth Report, Session 2001-02, Government Funding of the Scientific Learned Societies	HC 53
Second Special Report	Government Response to the Science and Technology Committee's Sixth Report, Session 2001-02, the National Endowment for Science, Technology and the Arts: A Follow-up	HC 276
Third Special Report	Government Response to the Committee's Seventh Report, Session 2001-02, The Office of Science and Technology: Scrutiny Report	HC 293
Fourth Special Report	Government Response to the Committee's Eighth Report, Session 2001-02, Short-term Contracts in Science and Engineering	HC 442
Fifth Special Report	Government Response to the Committee's First Report, The Work of the Particle Physics and Astronomy Research Council	HC 507
Sixth Special Report	Government Response to the Committee's Fourth Report, Towards a Non-Carbon Fuel Economy: Research, Development and Demonstration	HC 745
Seventh Special Report	Government Response to the Committee's Fifth Report: The Work of the Natural Environment Research Council	HC 1161
Eighth Special Report	Government response to the Committee's Sixth Report: UK Science and Europe: Value for Money?	HC 1162

**Session 2001–02**

First Report	Cancer Research – A Follow-Up	HC 444
Second Report	The Research Assessment Exercise	HC 507 (HC 995)
Third Report	Science Education from 14 to 19	HC 508-I (HC 1204)
Fourth Report	Developments in Human Genetics and Embryology	HC 791
Fifth Report	Government Funding of the Scientific Learned Societies	HC 774-I
Sixth Report	National Endowment for Science, Technology and the Arts: A Follow-Up	HC 1064
Seventh Report	The Office of Science and Technology: Scrutiny Report 2002	HC 860
Eight Report	Short-Term Research Contracts in Science and Engineering	HC 1046
First Special Report	The Government's Response to the Science and Technology Committee's Fourth Report, Session 2000–01, on The Scientific Advisory System	HC 360
Second Special Report	The Government's Response to the Science and Technology Committee's Sixth Report, Session 2000–01, Are We Realising Our Potential?	HC 361
Third Special Report	The Government's Response to the Science and Technology Committee's Seventh Report, Session 2000–01, on Wave and Tidal Energy	HC 377
Fourth Special Report	Government Response to the Committee's Third Report of Session 2000-01, on Scientific Advisory System: Scientific Advice on Climate Change	HC 493