

Consultation on the level of banded support for new solar PV under the Renewables Obligation

URN 15D/521, 17 December 2015



Contents

Ge	neral information	5
1.	Executive Summary	7
	The need for a banding review	7
	Proposed new support band	7
	Projects affected by the proposals	7
	Grandfathering of support	8
	Banding reduction exception to protect against the reduction in ROC support	8
	Proposed support according to date of accreditation and eligibility for grandfathering of suppo	rt9
	Evidence of costs	9
	Responding to the consultation	9
2.	Introduction	10
	Commitment to renewable energy	10
	The Renewables Obligation	10
	Deployment forecasts	10
	Measures to control small-scale solar PV	11
	Grace periods to the closure of the Renewables Obligation to solar PV	12
	Grandfathering	13
	Banding reduction exception to protect against reduced support following the banding review.	13
	Advance notice of the banding review	14
	Legal powers to conduct a banding review	14
	Launch of the banding review	15
	Territorial scope of the banding review	15
	Next steps	16
3.	Evidence of the problem	17
	Evidence on project costs	17
	Arup's methodology for project costs	18
	Levelised cost of electricity	20
	Rationale for a banding review	22
4.	Proposed support levels	23
	Current and proposed support for solar PV	23
	Proposed new support band	23
	Projects affected by the proposals	23

	Proposed support according to date of accreditation and eligibility for the exceptions from grandfathering removal and the banding reduction	24
	Modelling of the bands	26
	Minimum Import Price	
	Banding reduction exception to protect against reduced support following the banding review	27
	Future generation forecasts	28
5.	List of consultation questions	29

General information

Purpose of this consultation:

This consultation sets out the Government's proposals for reduced support under the Renewables Obligation, to apply from 1 June 2016. The proposals will affect solar PV generating stations with an accreditation date from 23 July 2015 onwards (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), **unless** they are eligible for the specified grandfathering exception, the significant financial commitment grace period or the banding reduction exception.

The consultation also sets out the proposed eligibility criteria for the banding reduction exception that was announced in the December 2015 Government response to the consultation on changes to financial support for solar PV. This exception will apply to projects which can demonstrate that a significant financial commitment had been made on or before 22 July 2015. It will give those projects protection against the reduction in support proposed under the banding review.

DECC invites interested parties to submit comments and evidence in response to these proposals.

Issued: 17 December 2015

Respond by: 27 January 2016

Enquiries to:

Renewables Obligation Team
Department of Energy & Climate Change,
Area 4D/E,
3 Whitehall Place,
London, SW1A 2AW

Email: SolarPV.Consultation@decc.gsi.gov.uk

Consultation reference: URN 15D/521 - Consultation on the level of banded support for new solar PV under the Renewables Obligation

Territorial extent:

This consultation applies to England and Wales only.

How to respond:

Your response will be most useful it is framed in direct response to the questions posed, though further comments and evidence are also welcome. Reasoning and evidence to support your answers will be particularly helpful. If you wish to refer to any long reports as part of your evidence, please identify the relevant sections that you are specifically referring to.

Where possible, responses should be submitted electronically via the e-consultation available at. www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

Responses emailed to <u>SolarPV.Consultation@decc.gsi.gov.uk</u> or hard copies sent to the postal address above will also be accepted.

Additional copies:

You may make copies of this document without seeking permission. An electronic version can be found on DECC's website at: www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

Confidentiality and data protection:

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on our website at: www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Quality assurance:

This consultation has been carried out in accordance with the Government's Consultation Principles, which can be found at: https://www.gov.uk/government/publications/consultation-principles-guidance

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

DECC Consultation Co-ordinator 3 Whitehall Place London SW1A 2AW

Email: consultation.coordinator@decc.gsi.gov.uk

1. Executive Summary

The need for a banding review

- 1.1 Solar PV is one of a number of renewable technologies supported by the Government through the Renewables Obligation (RO), helping to support the UK's renewable energy strategy.
- 1.2 There is evidence to suggest that the costs to developers associated with the deployment of solar PV have fallen significantly since the last RO banding review. This suggests that some solar PV projects will receive more support under the RO than is required for them to deploy. The Government is therefore carrying out a banding review for solar PV in England and Wales only. (The Scottish Government and Northern Ireland Executive are **not** carrying out a corresponding banding review for solar PV projects within their territories see paragraph 2.26 below).

Proposed new support band

1.3 We propose a revised support band for new solar PV projects up to 5MW in size, as set out in table 1 below, to come into force from 1 June 2016 (subject to the outcome of this consultation and Parliamentary approval). We are proposing that both building mounted and ground mounted projects receive the same support as the evidence on their costs is not dissimilar enough to justify different ROC bands.

Table 1: Proposed RO band for new solar PV projects up to 5MW

Installation type	ROC support (MWh)
Solar PV (building mounted)	0.8
Solar PV (ground mounted)	0.8

1.4 This reduced support will affect the projects described in paragraph 1.5 below.

Projects affected by the proposals

- 1.5 The proposed changes would apply to solar PV generating stations (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), where they have an accreditation date:
 - Between 23 July 2015 and 31 March 2016 but do **not** meet the grandfathering exception criteria (as explained in paragraph 2.17 below); or
 - Between 1 April 2016 and 31 March 2017 by virtue of meeting the early closure preliminary accreditation grace period or the grid delay grace period criteria (as set out paragraph 2.13 below), but do **not** meet the grandfathering exception criteria.

- 1.6 Stations will **not** be affected by the banding review where they have an accreditation date:
 - On or before 22 July 2015;
 - Between 23 July 2015 and 31 March 2016 and meet the grandfathering exception criteria;
 - Between 1 April 2016 and 31 May 2016 by virtue of meeting the early closure significant financial commitment grace period, and therefore meet the grandfathering exception criteria;
 - Between 1 June 2016 and 31 March 2017 by virtue of meeting the early closure significant financial commitment grace period, and therefore meet the grandfathering exception criteria, and the banding reduction exception criteria.

Grandfathering of support

- 1.7 The December 2015 Government response to the consultation on changes to financial support for solar PV¹, announced the decision to implement the proposal included in the July 2015 consultation to remove grandfathering² for solar PV projects with an accreditation date from 23 July 2015 onwards.
- 1.8 The Government response also announced the decision to implement the proposed exception from the removal of grandfathering. This exception will allow grandfathering to continue to apply to projects that satisfy the same criteria as those for the significant financial commitment grace period (as set out in the July consultation document and repeated in paragraph 2.13 below for ease of reference). New solar projects of 5MW and below (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), which meet these criteria will therefore receive the level of support that applies at the date of their accreditation, or the date their additional capacity commissioned, for the lifetime of their support under the RO.

Banding reduction exception to protect against the reduction in ROC support

1.9 The December 2015 Government response also announced the decision to introduce an exception designed to provide projects with protection against the proposed reduction in support following this banding review where they qualify for the grandfathering exception. This would ensure projects meeting the significant financial commitment criteria would not be affected by the proposed new bands regardless of whether they have an accreditation date before or after the proposed implementation date. These projects would, however, be affected by the existing reduction in support that was set in the last comprehensive banding review and confirmed in the Renewables Obligation Order 2015.

¹ Government response to consultation on changes to financial support for solar PV - Controlling spending on solar PV projects of 5MW and below within the Renewables Obligation, December 2015: https://www.gov.uk/government/consultations/changes-to-financial-support-for-solar-pv

² Grandfathering is a statement of policy intent that once a generating station is accredited and receiving support under the RO at a certain level (or band), the level it receives (in Renewables Obligation Certificates per MWh) would not change for the lifetime of its support under the RO.

Proposed support according to date of accreditation and eligibility for grandfathering of support

1.10 Table 7 in section 4 sets out the implications of the decision on grandfathering policy for future support under the RO. The support available depends on the date of accreditation of a project and whether or not it satisfies the exceptions from grandfathering removal and the banding reduction. (The 0.8 ROC rate and the implementation date of 1 June 2016 are subject to the outcome of this consultation and Parliamentary approval.)

Evidence of costs

- 1.11 This banding review consultation document (and the accompanying Impact Assessment³), provide an overview of the evidence supporting the Government's proposals, the proposed support rates, the Government's initial analysis of the costs and deployment potential based on that evidence.
- 1.12 Interested parties are encouraged to answer the questions in this consultation document and to provide supporting evidence about generation costs.

Responding to the consultation

- 1.13 Your response will be most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome. Reasoning and evidence to support your answers will be particularly helpful. If you wish to refer to any long reports as part of your evidence, please identify the relevant sections you are specifically referring to.
- 1.14 Where possible, responses should be submitted electronically via the e-consultation available at: www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation.
- 1.15 Responses emailed to SolarPV.Consultation@decc.gsi.gov.uk or hard copies sent to DECC's postal address (see under General Information) will also be accepted.
- 1.16 The deadline for responses to this consultation is 27 January 2016 and the Government intends to implement changes to the solar PV support regime by 1 June 2016 (subject to the outcome of this consultation and Parliamentary approval).

³Impact Assessment for the consultation on the level of banded support for new solar PV under the Renewables Obligation, December 2015:

www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation .

2. Introduction

Commitment to renewable energy

- 2.1 The Government remains committed to the move towards a low carbon economy, in a way that minimises costs to consumers and maximises the benefits of the renewables industry to the UK.
- 2.2 Solar PV is a UK success story. Deployment has been very rapid over the last 5 years, with 2.7GW of capacity installed in the UK at the end of 2013, and 8.2GW installed by the end of September 2015 (3.8GW of this total has deployed under the Renewables Obligation).

The Renewables Obligation

- 2.3 For most generators of renewable electricity, the wholesale price of electricity alone is insufficient to cover the cost of generation. Therefore, the Government offers eligible generators support through the Renewables Obligation (RO), which provides support in addition to the electricity price in order to bring forward the deployment of the capacity needed to meet the Government's renewables targets.
- 2.4 Different technologies receive different levels of support, which vary depending on the Government's assessment of each technology's costs and potential for deployment. Reviews are conducted periodically to ensure that as market conditions and innovation within sectors change, support levels are set so that they help to bring forward renewable technologies at the capacity needed, in an affordable way, delivering value for money for consumers. Ad-hoc reviews can be carried out when certain specified conditions have been met, as detailed in paragraph 2.21 below.

Deployment forecasts

2.5 When the closure of the RO to large-scale solar PV (above 5MW in capacity) was confirmed in the Government response published in October 2014, DECC made it clear that we would continue to monitor the deployment pipeline of small-scale solar PV projects (up to 5MW in capacity). DECC also made it clear that if this monitoring indicated deployment was growing more rapidly than could be afforded, we would consider taking measures to control spending.

Forecasts from October 2014

2.6 The estimate from the October 2014 Government response suggested a deployment range for small-scale solar PV of 300MW to 500MW in both 2015/16 and 2016/17.

Forecasts from early July 2015

2.7 Forecasts prepared for the July 2015 consultation suggested a significantly higher range. This indicated that deployment of new solar PV projects of 5MW and below was likely to be in the range of 800MW to 2GW in both 2015/16 and 2016/17, with a central

scenario of 1.25GW in each financial year⁴.

Latest forecasts (December 2015)

2.8 Although no information was received during the July consultation that challenged the earlier assessment of future deployment, DECC has revised the estimates for both 2015/16 and 2016/17, based on updated information from the Renewable Energy Planning Database (REPD). This was because the REPD shows that a significant number of projects have applied for, and received, planning permission in 2015/16. We currently estimate that without intervention to change the current RO bands, between 1.2GW to 1.8GW of solar PV (5MW and below) will commission in 2015/16. Our central estimate assumes that without intervention 1.5GW commissions in 2015/16.

Measures to control small-scale solar PV

- 2.9 This monitoring indicated that small-scale solar PV deployment was growing more rapidly than previously expected. On 22 July 2015, the Government launched a consultation on proposals to control spending. This proposed the early closure of the RO across Great Britain to new solar PV projects of 5MW and below, and the removal of grandfathering for solar PV projects of 5MW and below, in England and Wales only, that were not accredited under the RO as of the date of the consultation.
- 2.10 The Government response to that consultation was published on 17 December 2015⁵ and sets out the decisions:
 - To close the RO across Great Britain to new solar PV generating stations at 5MW and below in scale from 1 April 2016, and to additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity from that date⁶;
 - To provide closure grace periods in line with those provided last year for solar PV projects above 5MW where preliminary accreditation or significant financial commitments have been made on or before 22 July 2015 (i.e. the day on which we published the consultation), and for projects affected by grid delay (see paragraph 2.13 below for an explanation of the eligibility criteria for these grace periods);
 - To keep the eligibility date of 22 July 2015 and evidence that has to be provided in order to benefit from the grace periods. There will be a clarification of the planning evidence to exclude incomplete or invalid applications;
 - To remove grandfathering for projects in England and Wales with an accreditation date from 23 July 2015 onwards;

⁴ Impact Assessment for the consultation on changes to financial support for solar PV projects at 5MW and below under the Renewables Obligation, July 2015: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447323/Solar_PV_within_the_RO_

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447323/Solar_PV_within_the_RO_consultation_-_Impact_Assessment.pdf

⁵ Government response to consultation on changes to financial support for solar PV - Controlling spending on solar PV projects of 5MW and below within the Renewables Obligation, December 2015 : https://www.gov.uk/government/consultations/changes-to-financial-support-for-solar-pv

⁶ Additional capacity above 5MW is not eligible for the RO after 31 March 2016 (see the Government response to consultation on changes to financial support for solar PV, Part A: Controlling spending on large-scale solar PV within the Renewables Obligation, at: https://www.gov.uk/government/consultations/consultation-on-changes-to-financial-support-for-solar-pv

- To provide an exception to the removal of grandfathering for those projects that can demonstrate that they had made a significant financial commitment on or before 22 July 2015. The eligibility criteria will be the same as those required for the early closure significant financial commitment grace period;
- To allow projects qualifying for the exception to the removal of grandfathering to also benefit from an exception designed to provide protection against the proposed banding review reduction in support.
- 2.11 A recent consultation was also carried out in August 2015 on changes to the Feed-in Tariffs Scheme and the Government response to that consultation was published on 17 December 2015⁷.

Grace periods to the closure of the Renewables Obligation to solar PV

- 2.12 The criteria to qualify for the closure grace periods were set out in the July 2015 consultation, as amended by the December 2015 Government response. For ease of reference, the criteria are repeated below.
- 2.13 New solar PV projects of 5MW and below (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity) will continue to be eligible to enter the RO after 31 March 2016 (and until the full closure of the RO on 31 March 2017) if one of the following is met:
 - Preliminary accreditation under the RO has been obtained for the station on or before 22 July 2015. The application for full accreditation must be on or before 31 March 2017;
 - The following evidence is provided to Ofgem demonstrating that significant financial commitments have been made on or before 22 July 2015 in respect of the project. The evidence should be provided to Ofgem with the application for accreditation, which must be on or before 31 March 2017:
 - A grid connection offer and acceptance of that offer, both dated no later than 22 July 2015:
 - A Director's Certificate confirming ownership of the land, lease of the land, an option to lease or purchase the land, an agreement to lease the land or that the developer or a connected person is party to an exclusivity agreement in relation to the land as of and no later than 22 July 2015 by the developer or proposed operator of the station;
 - Confirmation that a valid planning application had been received by the relevant planning authority in respect of the project no later than 22 July 2015 or a declaration that planning permission is not required.
 - The following evidence is provided to Ofgem of **delays in the planned grid connection** to the electricity grid due to factors outside developers' control. The evidence should be provided to Ofgem with the application for accreditation, which must be on or before 31 March 2017:

⁷ Government response to the consultation on a review of the Feed-in Tariff scheme, December 2015: www.gov.uk/government/consultations/consultation-on-a-review-of-the-feed-in-tariff-scheme

- A grid connection agreement consisting of: a grid connection offer; acceptance
 of that offer; and a document from the network operator which estimated or set
 a date no later than 31 March 2016 for delivery of the connection;
- A written declaration by the generator that to the best of their knowledge, the generating station would have been commissioned no later than 31 March 2016 if the connection had been made on or before the estimated grid connection date;
- A letter or email from the network operator confirming that the grid connection
 was made after the estimated grid connection date; and that in the network
 operator's opinion, the failure to make the grid connection on or before the
 estimated grid connection date was not due to any breach of the grid connection
 agreement by the generator/developer.

Grandfathering

- 2.14 The December 2015 Government response announced the decision to implement the proposal to remove grandfathering for solar PV projects with an accreditation date under the RO that is **after** the 22 July 2015 publication date of the July consultation, i.e. grandfathering will be removed from projects with an accreditation date from 23 July 2015 onwards. The rationale for this decision is set out in the Government response.
- 2.15 Grandfathering is a statement of policy intent that once a generating station is accredited and receiving support under the RO at a certain level (or band), the level it receives (in Renewables Obligation Certificates per MWh) would not change for the lifetime of its support under the RO.
- 2.16 Support for new solar projects of 5MW and below (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), with an accreditation date from 23 July 2015 onwards will therefore decrease in line with the bands as they reduce (unless an exception applies, see below).
- 2.17 The Government response also announced the decision to implement the proposed exception from the removal of grandfathering. This will allow grandfathering to continue to apply to projects that satisfy the same criteria as for the significant financial commitment grace period (as set out in paragraph 2.13 above).
- 2.18 New solar projects of 5MW and below (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), that have an accreditation date from 23 July 2015 onwards and meet the specified criteria will therefore receive the level of support that applies at the date of their accreditation for the lifetime of their support under the RO.

Banding reduction exception to protect against reduced support following the banding review

2.19 The December 2015 Government response also announced the decision that projects with an accreditation date on or after the intended implementation date of 1 June 2016 for the proposed reduction in banded support, and which also meet the significant investment grace period criteria, will be protected against the reduction in support following this banding review. Further information on this banding reduction exception is set out in paragraphs 4.16 - 4.20 below.

Advance notice of the banding review

2.20 The July 2015 consultation explained that there was evidence to suggest that the costs to developers associated with the deployment of solar PV have fallen further and faster than previously anticipated when setting the current support rate under the RO. This suggested that some solar PV projects were receiving more support under the RO than would be required for them to deploy. In view of these falling costs for generators, the consultation proposed a separate banding review for solar PV projects of 5MW and below in England and Wales only. It also sought views and evidence on the whether costs had in fact fallen significantly since the last banding review.

Legal powers to conduct a banding review

- 2.21 The Electricity Act 1989 (as amended by the Energy Act 2008) gives the Secretary of State the power to carry out a banding review of support under the RO in England and Wales for any technology, at any time, if satisfied that one or more of the conditions set out in article 42(2) of the Renewables Obligation Order 2015⁸ have been met. The relevant conditions for this banding review are summarised as follows (keeping the same numbering from the Order but omitting (c), (f) and (g) as they are not relevant here⁹):
 - (a) The charges imposed by network operators for connection to, and use of, a transmission or distribution system have changed significantly;
 - (b) The charges imposed by network operators on those who generate electricity have changed significantly;
 - (d) There has been a change in support, whether financial or otherwise, to those generating electricity from renewable sources and that change is likely to have a significant impact on the generation of electricity;
 - (e) The costs of generating electricity from renewable sources have changed significantly;
 - (h) An event has occurred which is relevant to the factors set out in section 32D(4) of the Act (see paragraph 2.22 below), and this was not foreseen when the last banding review was carried out and is likely to have, or has had, a material effect on the operation of the RO Order.
- 2.22 Having decided that there is a justification to carry out a banding review, the Secretary of State must have regard to the factors set out in sections 32D(4), together with sections 32D (5) and (6) of the Electricity Act 1989 (as amended by the Energy Act 2008), before making banding provisions. These factors are summarised as follows:
 - a) The costs (including capital costs) associated with generating electricity from each of the renewable sources or with transmitting or distributing electricity so generated (and including any costs associated with the production or supply of heat produced in connection with that generation);

⁸ The Renewables Obligation Order 2015 came into force on 1 December 2015. It revokes the Renewables Obligation Order 2009. Article 42 of the 2015 Order replicates article 33(3) of the 2009 Order.

⁹ Articles 42(2)(c),(f) and (g) of the Renewables Obligation Order 2015 refer to new methods of generation, the impacts on the trade in ROCs, or an over-supply of ROCs compared to the level of the Obligation. These are not relevant at the current time for this banding review.

- b) The income of operators of generating stations in respect of electricity generated from each of those sources or associated with the generation of such electricity (including any income connected with the acquisition of the renewable source, the supply of heat produced in connection with the generation, and the disposal of any by-product of the generation process);
- c) The effect of paragraph 19 of Schedule 6 to the Finance Act 2000 (supplies of electricity from renewable sources exempted from climate change levy) in relation to electricity generated from each of those sources;
- d) The desirability of securing the long term growth, and economic viability, of the industries associated with the generation of electricity from renewable sources:
- e) The likely effect of the proposed banding provision on the number of ROCs issued by the Authority, and the impact this will have on the market for such certificates and on consumers;
- f) The potential contribution of electricity generated from each renewable source to the attainment of any target which relates to the generation of electricity or the production of energy and is imposed by, or results from or arises out of, an EU obligation.
- 2.23 In putting forward the proposal in this consultation, we have considered all of the factors in paragraph 2.22, as follows:
 - Factors (a), (b) and (c) on costs and incomes, are considered through in-house DECC analysis of supply curves and the ROC bands needed to bring forward the required percentage of the supply curve, which look at a range of possible costs and revenues for solar PV projects;
 - Factor (d) on the desirability of long term growth and economic viability, is considered qualitatively;
 - Factor (e) on the impact on ROCs, is considered through in-house DECC modelling, which estimates the total number of ROCs produced and the costs to consumers; and
 - Factor (f) on the contribution to targets, is considered through the solar PV supply curve used in DECC modelling, showing solar PV's potential for helping the UK meet its 2020 renewables target. Under the Renewable Energy Directive 2009/28/EC the UK is required to meet a target of 15% of all the energy consumed in 2020 to have come from renewable energy sources.

Launch of the banding review

2.24 This present consultation, published on 17 December 2015, launches the proposed banding review and proposes reduced support for new solar PV under the RO. Details of the evidence to support this and the proposed new band are set out in sections 3 and 4 respectively.

Territorial scope of the banding review

- 2.25 The proposals within this consultation document apply only to projects in England and Wales.
- 2.26 The Renewables Obligation scheme works on the basis of three complementary obligations, one covering England and Wales, and one each for Scotland and Northern

Ireland. Decisions regarding the details of the Obligations, including the setting of the RO banding levels in Scotland and Northern Ireland, are for the Scotlish Government and Northern Ireland Executive respectively. Neither of them are carrying out a corresponding banding review for solar PV projects within their territories.

Next steps

- 2.27 We will aim to publish our decision as soon as possible after the consultation closes on 27 January 2016, following careful consideration of all consultation responses and evidence received.
- 2.28 Subject to the outcome of this consultation and Parliamentary approval, we intend to implement any decision on changes to the banded support and grandfathering for solar PV through legislation, to come into force from 1 June 2016.
- 2.29 Detailed guidance on applying for the grace periods and eligibility for the grace periods and for grandfathering will be issued by Ofgem in due course.

3. Evidence of the problem

Evidence on project costs

3.1 DECC considers there is evidence to suggest that the costs to developers associated with the deployment of solar PV of 5MW or below has come down significantly since the support bands were set in 2012.

Evidence from the July 2015 consultation

3.2 The July 2015 consultation sought information on costs. The detailed evidence that was provided was taken into account in considering whether to conduct the banding review.

Evidence from independent contractors

3.3 Evidence has been provided by independent contractors, Arup, who were appointed by DECC in February 2015 to carry out a review of generation cost and technical assumptions of renewable technologies, including solar PV. An extract of their study, titled "Review of Renewable Electricity Generation Cost and Technical Assumptions – Study report (PV Only)" has been published alongside this consultation¹⁰. Full details of the approach and methodology undertaken by Arup are described in detail in their report. The key points are summarised below.

Evidence from the FITs Review

- 3.4 As part of the Government's review of the Feed-in Tariff's (FITs) Scheme, we commissioned Parsons Brinckerhoff to update our levelised costs assumptions for solar PV FITs installations¹¹. Solar PV projects below 5MW in size can choose to deploy through either support scheme, and therefore we have considered the suitability of using FITs data to calculate new solar PV RO bands.
- 3.5 We have decided not to use this FITs data. This is because Parsons Brinckerhoff assumed a smaller average project size in calculating generation costs compared with projects that typically deploy through the RO. As larger RO developers benefit from economies of scale and therefore face proportionately lower costs than FITs developers, setting new RO bands on the basis of FITs data would over-compensate RO generators.

¹⁰ Arup's Review of Renewable Electricity Generation Cost and Technical Assumptions – Study report (Solar PV Only), December 2015:

www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

¹¹ Parsons Brinckerhoff's Small-scale Generation Cost Update, August 2015: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456187/DECC_Small-Scale Generation Costs Update FINAL.PDF

Arup's methodology for project costs

Data gathered

3.6 Arup contacted manufacturers, developers, trade associations and utility companies, and carried out a review of both published and Arup's internal research reports, for information on the full range of technical and cost assumptions, including capital and operating costs and load factors. This resulted in returns from 13 data points, some of which included sub-sets of multiple projects.

Capital and operating costs

3.7 A detailed breakdown of the capital and operating costs is in the Arup report. In summary, these costs were presented as low, medium and high scenarios in tables 2 and 3 below.

Table 2: Capital Costs (financial close 2015), 2014 real prices

	1 - 5MW ground mounted (£'000/MW)	1 - 5MW building mounted (£'000/MW)
Low	866	844
Medium	1,007	936
High	1,156	1,071

Table 3: Operating Costs (financial close 2015), 2014 real prices

	1 - 5MW ground mounted (£'000/MW)	1 - 5MW building mounted (£'000/MW)
Low	8	9
Medium	12	16
High	18	24

3.8 We would welcome your views on Arup's assessment of costs.

Consultation Question

Q1. Do you agree with Arup's assessment of capital and operating costs?

Please give reasons and provide evidence to support your answer. We would particularly welcome itemised UK-specific evidence on costs, using the "Template to provide evidence on costs" published alongside this consultation document.

Availability

3.9 Availability is the actual hours of generation compared to the total number of hours in a year. The typical PV installation is assumed by Arup to be available for 99% of the year. This allows for some downtime for maintenance and washing of the panels.

Load Factor

3.10 DECC defines the load factor of a project in terms of installed capacity¹², expressed as:

Electricity generated during the year (in kWh)

((kW of installed capacity at the beginning of the year + kW of Installed capacity at the end of the year) x 0.5)) x hours in the year

- 3.11 The overall load factors reported by the stakeholders contacted by Arup were close to the current benchmarks from the Solar Trade Association and other external benchmarks, and the load factors assumed in this year's RO-setting exercise. Arup therefore recommended 11.1% as the load factor (net of availability) which is consistent between stakeholder values and published figures.
- 3.12 We would welcome your views on Arup's assessment of availability and load factors.

Consultation Question

Q2. Do you agree with Arup's assessment of availability?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q3. Do you agree with Arup's assessment of load factors?

Please give reasons and provide evidence to support your answer.

Financial hurdle rate

3.13 Hurdle rates are the average rates of return required by investors over a project's lifetime, to make investments worthwhile.

3.14 In setting new RO bands, DECC has used the RO hurdle rate of 6.2% (pre-tax real) quoted at the time of the Electricity Market Reform Delivery Plan¹³. This was calculated by adjusting average real pre-tax hurdle rates calculated by independent contractors,

¹² The formula for load factors is in paragraph 6.24 of Renewable sources of energy: Chapter 6, Digest of United Kingdom Energy Statistics (DUKES):

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/450298/DUKES_2015_Chapter_6.p_df

¹³ DECC's Electricity Market Reform Delivery Plan, December 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268221/181213_2013_EMR_Delivery_Plan_FINAL.pdf

- Oxera¹⁴, in 2011 to be consistent with KPMG's more recent assumptions¹⁵ of developers' effective tax rates, to calculate the pre-tax real hurdle rates required by investors to develop a project.
- 3.15 In February, the Government asked independent contractors, NERA, to review the Department's hurdle rates. We believe the hurdle rates calculated by NERA are not suitable for modelling new solar PV bands, as they have been modelled for CfD developers, who are not exposed to wholesale price risk.
- 3.16 We would welcome your views on DECC's assessment of the hurdle rate.

Consultation Question

Q4. Do you agree with DECC's assessment of the hurdle rate?

Please give reasons and provide evidence to support your answer.

Levelised cost of electricity

- 3.17 The information above on capital and operating costs, load factors and hurdle rate have been used by DECC to calculate a range of levelised costs of generating electricity from solar PV, as set out in table 4 below.
- 3.18 The levelised cost of electricity generation is the discounted lifetime cost of a generation asset (including all the costs over its lifetime, such as initial investment, cost of capital, operations and maintenance) divided by the discounted lifetime generation, giving the cost per MWh of electricity generated (£/MWh). The calculation therefore averages the cost of generation over the life of a plant. It essentially represents the break-even tariff per MWh hour in present value terms required by a stakeholder over the project's lifetime to recover costs. However, it ignores taxes and site specific considerations.

Oxera's Discounted rates for low-carbon and renewable generation technologies, April 2011: https://www.theccc.org.uk/archive/aws/Renewables%20Review/Oxera%20low%20carbon%20discount%20rates%20180411.pdf

KPMG's Electricity Market Reform: Review of effective tax rates for renewable technologies, July 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225619/July_2013_DECC_EMR_ETR_Report_for_Publication_-_FINAL.pdf

Table 4: Levelised cost of electricity generation for solar PV projects commissioning in 2015/16

DECC 2012 ¹⁶ levelised Costs (£/MWh; 2012 values)		Levelised Costs for projects commissioning in 2015/16 ¹⁷ (£/MWh; 2012 values)	
250kW to 5MW (no distinction between	£119/MWh to £165/MWh (2013 commissioning)	Building Mounted	£79/MWh (low) to £96/MWh (high) (2015 commissioning)
ground and building mounted)	£92/MWh to £150/MWh (2015 commissioning)	Ground Mounted	£78/MWh (low) to £99/MWh (high) (2015 commissioning)

- 3.19 Since we last set RO bands in 2012, the levelised costs of solar PV generation have fallen significantly. Ground and building-mounted costs have fallen from a range of £119-£165/MWh (2013 commissioning for 250kW to 5MW projects) to a range of £79-£96/MWh for building mounted projects, and £78-£99/MWh for ground mounted projects. All data is in 2012 values, using the Arup deflators to convert from 2014 to 2012 values.
- 3.20 We would welcome your views on DECC's assessment of the levelised cost of electricity generation for solar PV.

Consultation Question

Q5. Do you agree with DECC's assessment of the levelised cost of electricity generation for building mounted solar PV?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q6. Do you agree with DECC's assessment of the levelised cost of electricity generation for ground mounted solar PV?

¹⁶ DECC's Electricity Generation Costs (October 2012): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65713/6883-electricity-generation-costs.pdf

¹⁷ These use the RO hurdle rate of 6.2%.

Rationale for a banding review

- 3.21 The above findings suggest that levelised costs have fallen significantly since they were last calculated in 2012. This suggests that some solar PV projects are receiving more support under the RO than would be required for them to deploy.
- 3.22 Having considered the evidence, the Government is satisfied that a banding review can be carried out under article 42(2)(e) of the Renewables Obligation Order 2015 (previously article 33(3)(e) of the Renewables Obligation Order 2009), that is:
 - The costs of generating electricity in any of the ways listed in the first column of Part 2 or Part 3 of Schedule 5 are significantly different from the costs of generating electricity in that way to which the Secretary of State had regard when making the banding provisions.
- 3.23 Details of the proposed new support levels are set out in section 4.

4. Proposed support levels

Current and proposed support for solar PV

4.1 The current support for new solar PV projects under the RO is set out in table 5 below.

Table 5: current support under the RO

Bands	Support in ROCs/MWh for new generating stations accrediting in the period:	
	2015/16	2016/17
Solar PV (building mounted)	1.5	1.4
Solar PV (ground mounted)	1.3	1.2

Proposed new support band

4.2 On the basis of the new cost estimates set out in Section 3, and given that the Government intends to continue setting bands to bring forward up to 20% of the supply curve, we propose a revised support band for new solar PV projects up to 5MW in size, as set out in table 6 below. We are proposing that both building mounted and ground mounted projects receive the same support as the evidence on their costs (in section 3 above) is not dissimilar enough to justify different ROC bands.

Table 6: Proposed RO band for new solar PV projects of 5MW and below

Installation type	ROC support (MWh)
Solar PV (building mounted)	0.8
Solar PV (ground mounted)	0.8

Projects affected by the proposals

- 4.3 The proposed changes would apply to solar PV generating stations with an accreditation date from 23 July 2015 onwards (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity), where they have an accreditation date:
 - Between 23 July 2015 and 31 March 2016 but do **not** meet the grandfathering exception criteria (as explained in paragraph 2.17 above); or
 - Between 1 April 2016 and 31 March 2017 and meet the preliminary accreditation grace period or the grid delay grace period criteria (as set out paragraph 2.13 above), but do **not** meet the grandfathering exception criteria.

4.4 Existing stations with an accreditation date on or before 22 July 2015 will not be affected by the banding review.

Proposed support according to date of accreditation and eligibility for the exceptions from grandfathering removal and the banding reduction

4.5 The implications of the decision on grandfathering policy for future support under the RO, according to the date a station accredits and whether or not they satisfy the exceptions from grandfathering removal and the banding reduction, are set out in table 7 below (the 0.8 ROC rate and the implementation date of 1 June 2016 are subject to the outcome of this consultation and Parliamentary approval).

Table 7: Proposed support for new stations according to their date of accreditation and eligibility for the exceptions from grandfathering removal and the banding reduction

Projects that qualify for the grandfathering exception criteria/significant financial commitment grace period		
Station with an accreditation date between 23 July 2015 and 31 March 2016 (i.e. before the RO closure date for small-scale solar PV) and meets the grandfathering exception criteria	Receives current 2015/16 ROC bands for the lifetime of their 20 year support under the RO: • Building mounted: 1.5 • Ground mounted: 1.3	
Station with an accreditation date between 1 April 2016 and 31 May 2016 by virtue of the significant financial commitment grace period and therefore meets the grandfathering exception criteria	Receives the current 2016/17 ROC bands for the lifetime of their 20 year support under the RO: • Building mounted: 1.4 • Ground mounted: 1.2	
Station with an accreditation date between 1 June 2016 and 31 March 2017 by virtue of the significant financial commitment grace period and therefore meets the grandfathering exception criteria and the banding reduction exception criteria	Receives the current 2016/17 ROC bands for the lifetime of their 20 year support under the RO: • Building mounted: 1.4 • Ground mounted: 1.2	

(Table continued over the page)

Projects that do NOT qualify for the grandfathering exception criteria

Station with an accreditation date between 23 July 2015 and 31 March 2016 (i.e. before the RO closure date for small-scale solar PV) but does **not** meet the grandfathering exception criteria

Receives the current 2015/16 ROC bands until 31 May 2016:

Building mounted: 1.5Ground mounted: 1.3

From 1 June 2016, support reduces to the new band proposed in this consultation document:

Building mounted: 0.8Ground mounted: 0.8

But this is **not** guaranteed for the lifetime of their 20 year support under the RO

Station with an accreditation date between 1 April 2016 and 31 May 2016 by virtue of the preliminary accreditation grace period or the grid delay grace period criteria but does **not** meet the grandfathering exception criteria

Receives the current 2016/17 ROC bands until 31 May 2016:

Building mounted: 1.4Ground mounted: 1.2

From 1 June 2016, support reduces to the new band proposed in this consultation document:

Building mounted: 0.8Ground mounted: 0.8

But this is **not** guaranteed for the lifetime of their 20 year support under the RO

Station with an accreditation date between 1 June 2016 and 31 March 2017 by virtue of the preliminary accreditation grace period or the grid delay grace period criteria but does **not** meet the grandfathering exception.

Receives the new band proposed in this consultation document:

Building mounted: 0.8Ground mounted: 0.8

But this is **not** guaranteed for the lifetime of their 20 year support under the RO

- 4.6 A station that accredits on or before 22 July 2015 will be automatically grandfathered and will not need the grandfathering exception or an early closure grace period.
- 4.7 A station that does **not** qualify for an early closure grace period cannot accredit after 31 March 2016 (the RO closure date for small-scale solar PV).

Modelling of the bands

- 4.8 Consistent with our approach to modelling RO bands for solar PV in 2012, we have chosen to model support levels to incentivise up to 20% of the supply curve for both building mounted and ground mounted installations.
- 4.9 The supply curve, on which we have set new solar PV RO support levels, is based on Arup cost data and each point on the supply curve represents the net return developers might expect to make, given the ROC rate assumed. The highest and lowest points on the supply curve are based on Arup's estimates of low and high capital costs respectively.
- 4.10 We have modelled RO bands so that up to 20% of projects on the supply curve make returns greater than or equal to the assumed 6.2% hurdle rate.
- 4.11 Our revenue and output assumptions are consistent with DECC's central 2015 wholesale price projections ¹⁸ and use a load factor of 11.1%¹⁹. RO revenue projections are based on the RO buy-out price plus headroom, and we have assumed that investors include projected increases in the wholesale price of electricity when making investment decisions.
- 4.12 More detail on the modelling assumptions used is set out in the Impact Assessment²⁰ published alongside this consultation document.

Minimum Import Price

- 4.13 In 2012, a complaint was lodged with the European Commission by a consortium of manufacturers about the dumping of solar PV products by Chinese manufacturers and the payment of subsidies to them by the Chinese Government. This resulted in goods being sold below the market price. Following an investigation by the Commission, anti-dumping and anti-subsidy duties were imposed against Chinese solar PV products for a period of 2 years. The Minimum Import Price (MIP) that was imposed was due to be removed in December 2015. However, a request was made to the Commission to continue the measures.
- 4.14 The Commission announced on 5 December 2015 that it would review the MIP The MIP will remain in place for the duration of the review, which can take up to 15 months. DECC's calculations therefore take account of the MIP.
- 4.15 We would welcome your views on the proposed level of support of 0.8 ROCs/MWh for ground mounted and building mounted solar PV

¹⁸ DECC's Updated energy and emissions projections: 2015: https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2015

¹⁹ Consistent with the solar PV load factor used for the 2016/17 Obligation-setting exercise and Arup's 2015 solar PV load factor.

²⁰ Impact Assessment for the consultation on the level of banded support for new Solar PV under the Renewables Obligation, December 2015: www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

Consultation Question

Q7. Do you agree with the proposal to set the level of RO support for new solar PV at 0.8 ROCs/MWh for ground mounted and building mounted solar PV?

Please give reasons and provide evidence to support your answer.

Banding reduction exception to protect against reduced support following the banding review

- 4.16 The December 2015 Government response announced that projects qualifying for the exception to the removal of grandfathering would also benefit from an exception designed to provide protection against the proposed reduction in support following this banding review.
- 4.17 This will ensure that projects which have made a significant financial commitment on or before 22 July 2015 will be protected from the proposed re-banding, regardless of whether they have an accreditation date before or after the banding review has been implemented. In effect, they will receive the currently applicable ROC rate, and not the ROC rate that will apply after the banding review is implemented.
- 4.18 We believe that any project that applies under the preliminary accreditation grace period should also be able to meet the significant financial commitment criteria, and so will be eligible for the banding reduction exception.
- 4.19 However, in the same way that the exception to the removal of grandfathering only applies to projects that satisfy the criteria for significant financial commitment, we propose that the banding reduction exception should also only apply to those projects. Projects that decided to proceed without meeting the significant financial commitment criteria set out in the July 2015 consultation document will have been aware that the grandfathering policy may change. This includes projects which go on to commission and accredit after 31 March 2016 because they are eligible for the grid delay grace period. We do not consider that such projects should benefit from the banding reduction exception.
- 4.20 We propose that the banding reduction exception will be available from 1 June 2016 to 31 March 2017 for those projects of 5MW and below (and additional capacity added to existing accredited stations that does not take it above 5MW in total installed capacity) that can provide the following evidence:
 - A grid connection offer and acceptance of that offer, both dated no later than 22 July 2015 or a declaration that no grid works are required;
 - A Director's Certificate confirming ownership of the land, lease of the land, an option to lease or purchase the land, an agreement to lease the land or that the developer or a connected person is party to an exclusivity agreement in relation to the land as of and no later than 22 July 2015;
 - Confirmation that a valid planning application had been received by the relevant planning authority in respect of the project no later than 22 July 2015 or a declaration that planning permission is not required.
- 4.21 We would welcome your views on the proposed criteria for the banding reduction exception.

Consultation Question

Q8. Do you agree that the banding reduction exception should be available only to those projects that qualify for the exception to the removal of grandfathering?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q9. Do you agree that the banding reduction exception should be available from 1 June 2016 to 31 March 2017?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q10. Do you agree with the proposed forms of evidence to demonstrate eligibility for the banding reduction exception?

Please give reasons and provide evidence to support your answer, specifying the form(s) of evidence to which each comment relates.

Future generation forecasts

- 4.22 There is uncertainty around the amount of solar PV deployment which could come forward in 2015/16 under the proposed new band of 0.8 ROCs/MWh. The existence of counteracting impacts on deployment (i.e. reductions due to lower support levels, compared with increases due to 2016/17 capacity deploying earlier than intended), combined with a lack of robust data on which to project likely future deployment, means that we have currently assumed no net impact on overall solar PV deployment in 2015/16. Further Information on this is set out in the accompanying Impact Assessment²¹.
- 4.23 We would welcome your views on DECC's assessment of the impact of re-banding on 2015/16 solar PV deployment.

Consultation Question

Q11. Do you agree there will be no net impact on overall solar PV deployment in 2015/16 as a result of the re-banding to 0.8ROCs/MWh?

²¹ Impact Assessment for the consultation on the level of banded support for new Solar PV under the Renewables Obligation, December 2015:

www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

5. List of consultation questions

Consultation Question

O1. Do you agree with Arup's assessment of capital and operating costs?

Please give reasons and provide evidence to support your answer. We would particularly welcome itemised UK-specific evidence on costs, using the "Template to provide evidence on costs" published alongside this consultation document.

Consultation Question

Q2. Do you agree with Arup's assessment of availability?

Please give reasons and provide evidence to support your answer.

Consultation Question

O3. Do you agree with Arup's assessment of load factors?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q4. Do you agree with DECC's assessment of the hurdle rate?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q5. Do you agree with DECC's assessment of the levelised cost of electricity generation for building mounted solar PV?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q6. Do you agree with DECC's assessment of the levelised cost of electricity generation for ground mounted solar PV?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q7. Do you agree with the proposal to set the level of RO support for new solar PV at 0.8 ROCs/MWh for ground mounted and building mounted solar PV?

Consultation Question

Q8. Do you agree that the banding reduction exception should be available only to those projects that qualify for the exception to the removal of grandfathering?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q9. Do you agree that the banding reduction exception should be available from 1 June 2016 to 31 March 2017?

Please give reasons and provide evidence to support your answer.

Consultation Question

Q10. Do you agree with the proposed forms of evidence to demonstrate eligibility for the banding reduction exception?

Please give reasons and provide evidence to support your answer, specifying the form(s) of evidence to which each comment relates.

Consultation Question

Q11. Do you agree there will be no net impact on overall solar PV deployment in 2015/16 as a result of the re-banding to 0.8ROCs/MWh?

Consultation on the level of banded support for new solar PV under the Renewables Obligation

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