

Title: Consultation on the level of banded support for new solar PV under the Renewables Obligation IA No: DECC0201 Lead department or agency: Department of Energy and Climate Change Other departments or agencies: HMT, Defra, CLG, BIS, Scotland Office, Welsh Office, Northern Ireland Office	Impact Assessment (IA)		
	Date: 17/12/2015		
	Stage: Consultation		
	Source of intervention: Domestic		
	Type of measure: Secondary legislation		
Contact for enquiries: Connor Burch (connor.burch@decc.gsi.gov.uk)			
Summary: Intervention and Options			RPC Opinion: Not Applicable

Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Two-Out? Measure qualifies as
£0m	N/A	N/A	No NA

What is the problem under consideration? Why is government intervention necessary?

Solar photovoltaic (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. However, there is evidence to suggest that solar PV generation costs have fallen significantly since the RO bands were last set in 2012. On 22 July 2015, the Government launched a consultation on changes to financial support for solar PV. This included a proposal to carry out a separate banding review for solar PV projects of 5MW and below in England and Wales and sought views and evidence on whether costs had fallen since the last banding review in 2012. The Government response to that consultation (published on 17 December 2015) announced the decision that there was sufficient evidence to hold a technology-specific banding review for solar PV in England and Wales.

What are the policy objectives and the intended effects?

The proposed intervention is intended to prevent new solar PV projects with a capacity of 5MW and below from receiving more support under the RO than is required for them to deploy, whilst still providing sufficient support to being forward up to 20% of the deployment supply curve.

The changes proposed in the banding review consultation (published alongside this Impact Assessment) would apply to generating stations with an accreditation date from 23 July 2015 onwards (and to additional capacity added to existing accredited stations from that date, up to 5MW total installed capacity), unless they meet both the grace period criteria (confirmed in the December 2015 Government Response), and also accredit before the implementation of the results of the present banding review.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

We have considered the following options:

Option 1: Do nothing; leave RO bands for solar PV installations of 5MW and below unchanged from their current levels (1.3 and 1.5 ROCs/MWh for ground and building-mounted installations respectively in 2015/16 and 1.2 and 1.4 ROCs/MWh respectively in 2016/17, for installations accrediting under the grace period provisions, as confirmed in the December Government Response).

Option 2: Re-band support levels for solar PV installations of 5MW in size and below to 0.8 ROCs/MWh for both ground-mounted and building-mounted installations which do not meet the grace period eligibility criteria.

Option 2 is the preferred option, as it prevents the potential overcompensation of generators, as updated evidence suggests they now face lower costs than when solar PV bands were last set in 2012.

Will the policy be reviewed? It will not be reviewed. If applicable, set review date: Month/Year						
Does implementation go beyond minimum EU requirements?			N/A			
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.		Micro No	< 20 Yes	Small Yes	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: N/A		Non-traded: N/A	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:  Date: 16/12/2015

Summary: Analysis & Evidence

Policy Option 2

Description: Re-band support levels for solar PV projects with a capacity of 5MW and below to 0.8 ROCs/MWh for both ground-mounted and building-mounted installations intending to deploy in 2015/16, and which do not meet the grace period eligibility criteria announced on 22 July 2015.

FULL ECONOMIC ASSESSMENT

Price Base 2011/12	PV Base 2015/16	Time Period 25 Years	Net Benefit (Present Value (PV)) (£m)		
			Low: £0m	High: £0m	Best Estimate: £0m

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A	£0m	£0m
High	N/A	£0m	£0m
Best Estimate	N/A	£0m	£0m

Description and scale of key monetised costs by 'main affected groups'

The impact of this policy on solar PV deployment is uncertain and therefore we have not been able to monetise the costs of this policy. Please see the sections on non-monetised costs and benefits for a qualitative assessment of costs and benefits.

Other key non-monetised costs by 'main affected groups'

The overall impact of re-banding on solar PV deployment is uncertain, due to potentially counteracting effects. On the one hand, reductions in solar PV support levels could reduce the amount of future solar PV deployment compared with the "Do Nothing" scenario, as some developers may choose not to deploy under the new proposed support rates. However, the closure of the RO to new capacity after 31 March 2016 may lead to an increase in solar PV deployment, for capacity that would have otherwise intended to deploy in 2016/17. There is not currently sufficient evidence to robustly estimate which effect might dominate; therefore, we have assumed no net impact on overall solar PV deployment in 2015/16. We would welcome evidence from respondents to the consultation to help with this estimate.

If there is lower deployment, the solar PV generation lost through intervention may be replaced by non-renewable sources (such as gas-fired generation), which could impose costs on consumers through the need to purchase more EU ETS permits (EUAs) to offset the resulting higher carbon emissions. We will revisit these estimates in light of any evidence received through consultation.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A	£0m	£0m
High	N/A	£0m	£0m
Best Estimate	N/A	£0m	£0m

Description and scale of key monetised benefits by 'main affected groups'

Benefits include a reduction in the level of support paid by consumers through the LCF. Under this option, affected solar PV generators which continue to deploy under the RO will receive a lower level of RO support. Given the proposed RO bands (0.8) offer a lower level of support than FITs, we expect some developers to opt for the FITs instead of the RO (though this is uncertain and hence subject to sensitivity analysis in the ranges above). However, FITs tariffs are lower than current RO support levels (1.3/1.5) until the end of December 2015, and therefore any shift from RO to FITs deployment will lower overall LCF support costs. As these benefits represent a transfer from generators to consumers, they have no monetised net impact on society. We have modelled the net benefits to consumers in terms of reduced LCF spending, in section 4 of this impact assessment.

Other key non-monetised benefits by 'main affected groups'

A potential reduction in solar PV deployment may reduce system balancing costs, if it is replaced by non-intermittent generating capacity. Reductions in LCF support could help minimise the impact on consumers' bills from supporting renewable generation. Subject to there being an impact on deployment, the solar PV generation which may be lost through intervention may be replaced by gas-fired generation, which has lower generation (hence resource) costs.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5%

The range of costs and benefits reflects uncertainties around:

- The amount of solar PV projects (5MW and below) which may deploy before the closure of the RO on 31 March 2016.
- Developers' scheme preferences, when offered the choice of deploying through FITs or the RO.

For a more detailed methodology and full set of modelling assumptions, please see Annex A.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OTO?	Measure qualifies as
Costs: N/A	Benefits: N/A	Net: N/A	No	NA

1. Strategic Overview

1. The EU Renewable Energy Directive commits the UK to meeting 15% of its energy needs from renewable sources by 2020. The Renewables Obligation (RO), introduced in 2002, has been the Government's main financial policy mechanism for incentivising the deployment of large-scale renewable electricity generation in the UK. Solar PV at or below 5MW is currently eligible for support under the RO, though the majority of solar projects at this scale to date have come forward under Feed-in Tariffs (FITs). The RO places an obligation on UK electricity suppliers to source an increasing proportion of the electricity they supply from renewable sources. Renewable Obligation Certificates (ROCs) are issued to operators of accredited renewable generating stations for the eligible renewable electricity they generate. ROCs are then used by suppliers to demonstrate that they have met their obligation.
2. Different technologies receive different levels of support under the RO, reflecting differences in their underlying costs. The support levels that currently apply were set in 2012, as part of the Renewables Obligation Banding Review. This set support levels for the RO from April 1st 2013 to 31st March 2017¹.
3. Under current policy, the RO will close to all new renewable generating capacity from 1 April 2017 (with grace periods), whilst maintaining support for existing generating capacity in the scheme out to their respective end dates (of which the latest would be 31st March 2037).
4. The Levy Control Framework (LCF) sets annual limits on the overall cost of DECC's levy-funded policies. As the costs of the levy-funded schemes are paid for by consumers through their energy bills, the Government takes potential risks to the LCF very seriously and will act where necessary to ensure that costs are contained and that consumers receive value for money from initiatives supported by the LCF.
5. DECC took action to close the RO to large-scale (i.e. greater than 5MW) solar in October 2014². It has also consulted on and has responded to the consultation on removing grandfathering for biomass conversions, and has also announced early closure of the RO to onshore wind³.

2. Rationale for Government Intervention

6. As set out above, the Government's last RO banding review of solar PV in December 2012 announced bands for solar PV for the period 1 April 2013 to 31 March 2017. DECC stated that the levels of ROC support were intended to encourage slow but steady deployment of solar PV. Support was set to reduce over the period, from 1.6 ROCs per MWh in 2013/14⁴ to 1.2 ROCs per MWh in 2016/17, reflecting the anticipated reduction in costs of solar deployment over the period (at the time of the Banding Review).
7. On 2 October 2014, the Department of Energy and Climate Change (DECC) published a response to a consultation on changes to financial support for solar PV⁵. This confirmed the decision to close the RO to new solar PV generating stations above 5MW in scale from 1 April 2015, and to additional capacity added to existing accredited stations from that date, where the station is, or would become, above 5MW.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211292/ro_banding_levels_2013_17.pdf

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360280/Government_response_RO-FIT_changes_to_Solar_PV_-_FINAL_2014-10-02.pdf

³ <https://www.gov.uk/government/speeches/ending-new-subsidies-for-onshore-wind>

⁴ For ground-mounted installations. Support for building-mounted installations was set to fall from 1.7 ROCs per MWh to 1.4 ROCs per MWh over the same period.

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/360280/Government_response_RO-FIT_changes_to_Solar_PV_-_FINAL_2014-10-02.pdf

8. Information available at the time of the consultation suggested that projects of 5MW and below formed a relatively small part of the expected future solar PV deployment under the RO. The rate of deployment of these smaller solar PV projects was assessed as posing a lower risk to the LCF, when compared to the risk from projects above 5MW in size. It was therefore decided to keep the RO open to new solar PV projects at or below 5MW in size until 31 March 2017.
9. However, the Government stated in the Government response that: “...consistent with our responsibility for managing RO expenditure under the LCF and mindful of how quickly the solar sector has adapted to past policy changes we will continue to monitor the deployment pipeline. As indicated in our consultation document, if this monitoring indicates deployment is growing more rapidly than can be afforded we will consider taking measures to protect the LCF.”
10. Subsequent monitoring suggests that deployment of solar projects at 5MW and below is likely to be significantly greater than anticipated in DECC’s previous forecasting. At the time of the RO closure for solar projects greater than 5MW (October 2014), it was estimated that 300-500MW of solar at 5MW and below in size would come forward in each of 2015/16 and 2016/17.
11. While there is considerable uncertainty about solar deployment in general, the evidence indicates that the potential for (and therefore likely) deployment has increased substantially. DECC has updated its assessment of the solar PV pipeline using data from the Renewable Electricity Planning Database (REPD)⁶. This shows that a significant number of solar PV projects 5MW or less in size have applied for planning permission in 2015/16. This includes:
 - Around **100MW** of projects that have either already accredited or are under construction;
 - Up to **1GW** of projects that already have planning approval and are awaiting construction;
 - Up to **300MW** of projects that applied for planning approval prior to 22nd July 2015 (when the announcement was made to close the RO to solar of 5MW and below) that have yet to find the outcome of their application; and
 - Up to **500MW** of projects that have applied for planning permission since 22nd July 2015, and which we expect could commission by the end of 2015/16.
12. Given the uncertainty around some of these categories, we estimate that, without intervention to change the current RO bands, between 1.2 GW and 1.8GW of solar PV (5MW and below) will commission in 2015/16. Our central estimate assumes that 1.5GW commissions in 2015/16.
13. To prevent over-deployment and limit the impact on consumers’ bills via the LCF, the Government has closed the RO to new solar PV capacity in 2016/17. In the absence of closure, we estimate that between 1.2GW and 2GW of solar PV (of 5MW and below) may also have commissioned in 2016/17, as set out in the impact assessment alongside the Government response to the RO solar closure consultation⁷.
14. There is also evidence that solar PV generation costs have fallen significantly since RO bands were last set for this technology. In the first CfD allocation round, which completed in February 2015, three large-scale solar PV projects signed contracts at a strike price of £79.23/MWh - significantly lower than the CfD administrative strike price (£115/MWh), which was modelled using solar PV generation costs consistent with the last solar PV banding exercise.

⁶ <https://www.gov.uk/government/statistics/renewable-energy-planning-database-monthly-extract>

⁷ <https://www.gov.uk/government/consultations/changes-to-financial-support-for-solar-pv>

Table 1: Comparison of Solar PV Administrative Strike Prices and Solar PV CfDs awarded through Allocation Round One

	Administrative Strike Price (2013 EMR Final Delivery Plan)	CfD Allocation Round 1 Solar PV Bid Strike Price (£/MWh)
2016/17 Strike Price (£/MWh)	115.00	79.23

15. The Government has also recently commissioned Arup to review its assumptions used to calculate renewable electricity generation costs. In 2012, DECC estimates of levelised costs for solar PV projects between 250kW and 5MW commissioning in 2013 were between £119/MWh and £165/MWh⁸. New evidence from Arup⁹ shows that generation costs for projects 5MW in size and smaller have fallen to between £78/MWh and £99/MWh for ground-mounted installations, and between £79/MWh and £96/MWh for building-mounted installations¹⁰.
16. These two factors (higher-than-expected deployment levels and lower generation costs) suggest that there is a justification for re-banding solar PV support levels. This is to prevent a level of deployment by 31st March 2016 that is significantly above that intended by the previous RO bands (and hence potential overcompensation of developers).
17. Alongside the Arup evidence update for large-scale technologies, there was also an evidence review of technologies supported by FITs, undertaken by WSP Parsons Brinckerhoff¹¹. We have decided to use the Arup data; the rationale for why we have chosen to use Arup cost data to model new RO bands is set out in Annex A.

3. Description of Options Considered

16. The Government has considered the following options to prevent over-compensation of solar PV generators, limiting further pressure on the LCF and therefore consumers' bills. These are:
- **Option 1:** Do nothing
 - **Option 2:** Re-band solar PV support levels (to 0.8 ROCs/MWh) for projects 5MW and smaller which are ineligible for the RO closure grace period but which still commission in 2015/16.

17. The Government's preferred option is **Option 2**.

Option 1: 'Do Nothing'

18. Under this option, no intervention would be taken to re-band the level of support offered to generators for solar at 5MW or below, commissioning in 2015/16 and who are ineligible for the RO closure grace period. Therefore, these generators would continue to receive 1.3ROCs/MWh for ground-mounted installations and 1.5ROCs/MWh for building-mounted installations until the end of 2015/16, when the RO closes to new capacity. As set out above, it is estimated that this will result in total solar PV deployment (5MW and below) of 1.2-1.8GW in 2015/16, with a central estimate of 1.5GW.

⁸ DECC's "Electricity Generation Costs (October 2012)":

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65713/6883-electricity-generation-costs.pdf

⁹ www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

¹⁰ All figures presented are in £2012 prices, and have been calculated using a 6.2% hurdle rate.

¹¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456187/DECC_Small-Scale_Generation_Costs_Update_FINAL.PDF

Option 2: Re-band solar PV support levels (to 0.8 ROCs/MWh) for projects 5MW and smaller which are ineligible for the RO closure grace period, but which still commission in 2015/16.

19. On 22 July 2015, the Government announced, alongside the closure of the RO to new capacity in 2016/17, its intention to hold a banding review for projects which could not demonstrate that they had met the significant financial commitment criteria set out in the consultation on closing the RO to new solar capacity in 2016/17.
20. To demonstrate that a significant financial commitment had been made on or before 22 July 2015, developers have been asked to submit the following evidence to OFGEM:
 - 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 person¹² 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 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.
21. We anticipate that between **200MW** and **470MW**¹³ of solar PV capacity deploying in 2015/16 may fail to meet the above criteria. On the basis of the revised evidence set out below, the Government proposes to re-band support levels for these projects to 0.8 ROCs per MWh for ground-mounted installations, and 0.8 ROCs per MWh for building-mounted installations.
22. The Government also proposes to offer generators who meet the above significant financial commitment criteria a "banding reduction exemption", whereby eligible generators continue to receive current ROC bands, even if they deploy in 2016/17 (i.e. 1.4 and 1.2 ROCs/MWh for building and ground-mounted installations respectively). Given that solar PV projects have historically deployed within short timescales, we expect most, if not all, capacity eligible for the RO closure grace-period to deploy in this financial year, given these projects applied for planning permission before 22 July 2015.

4. Impact of short-listed options

23. This section sets out both the monetised and non-monetised costs and benefits of the Government's preferred option (Option 2: the re-banding of solar-PV support to 0.8 ROCs per MWh for projects accrediting in 2015/16, but which are not eligible for the RO closure grace period), when compared against a baseline of no intervention (Option 1).

Option 1 – "Do Nothing"

24. We currently estimate that between 1.2GW and 1.8GW of solar PV capacity could accredit under the RO in 2015/16 in the absence of intervention. In our central scenario, we assume that 1.5GW of capacity would have commissioned in 2015/16. Of this, we anticipate that between 200MW and 470MW of capacity will not be eligible for grand-fathering and hence subject to the revised RO bands.
25. In the absence of intervention, solar PV projects would continue to get a rate of 1.5 ROCs/MWh (for building-mounted installations) or 1.3 ROCs/MWh (for ground-mounted

¹² Within the meaning of section 1122 of the Corporation Tax Act 2010

¹³ Further detail on how these deployment estimates have been derived are included in Annex A of this impact assessment

installations). Given that evidence suggests that solar PV generation costs have fallen since bands were last set in 2012, not taking action could lead to the overcompensation of generators, thereby putting unnecessary pressure on the LCF and consumer bills.

26. This is the baseline against which the intervention (“option 2”) has been assessed.

Option 2 – Re-band solar PV support levels for projects 5MW in size and smaller to 0.8ROCs/MWh for projects ineligible for the RO closure grace period, and which commission in 2015/16.

27. This option proposes new RO bands for those solar PV projects commissioning in 2015/16 which did not meet the RO closure grace-period eligibility criteria (significant financial commitment) announced on 22 July 2015. The proposed support rates are set out in table 2 below.

Table 2: Proposed ROC bands for 2015/16 projects ineligible for RO closure grace-period

Installation Type	Support Level (ROC/MWh)
Building-mounted	0.8
Ground-mounted	0.8

28. These solar PV RO bands have been set on the basis of DECC’s latest view of solar PV generation costs¹⁴, and have been set using the same methodology as for the previous RO bands – i.e. at a rate sufficient to bring forward up to, and no more than, 20% of the revised solar PV supply curve.¹⁵

29. Updated evidence suggests that there is relatively small variation for solar PV developers’ costs across different sites. This means that there is less difference in the generation costs between projects at the top and bottom of the solar PV supply curve, compared with other technologies. Small increases or reductions in solar PV support level therefore have the potential to incentivise or dis-incentivise a significant proportion of the technology’s supply curve. As ROC bands are set to the nearest 0.1 ROC per MWh, it is not possible to set the proposed RO bands to bring forward exactly 20% of the supply curve.

30. We have therefore set support levels for solar PV projects to bring forward up to 20% of the supply curve. This is consistent with the methodology that was used in 2012 to set current solar PV support levels. We have chosen not to target a higher proportion of the supply curve to avoid overcompensating generators, thereby limiting the pressure on the LCF and consumers’ bills.

31. DECC has also recently undertaken work to revise its evidence on technology-specific hurdle rate assumptions. However, we have chosen to model the proposed solar PV ROC bands on the basis of the RO hurdle rate used for the EMR Final Delivery Plan, for consistency purposes.

Impact on Deployment

16. The proposed ROC bands in Option 2 could reduce the amount of solar PV deploying in 2015/16, as the proposed support levels may be insufficient to cover the costs of projects which would otherwise deploy at current support levels.

¹⁴ www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation

¹⁵ www.gov.uk/government/uploads/system/uploads/attachment_data/file/66610/7366-impact-assessment-for-the-government-response-to-t.pdf

17. A potential reduction in the amount of solar PV deployment compared with the “do nothing” option could lead to an increase in societal costs, as the capacity which would be deployed in the place of solar PV may have higher carbon costs.
18. There could also be costs or benefits to society from switching from solar PV to other types of generation, as the capacity which may replace solar PV could have either higher or lower generation costs, depending on the type of generation that is expected to replace solar PV. For example, gas generation is cheaper than solar PV and grid-average generation costs are higher than solar PV.
19. However, the effect of re-banding on solar PV deployment is uncertain, due to potentially counteracting effects. On the one hand, the effect set out above (developers choosing not to deploy under the new proposed support rates) could reduce future solar PV deployment. In contrast, the closure of the RO to new capacity after 31 March 2016 may lead to an increase in solar PV deployment in 2015/16, for capacity that would have otherwise intended to deploy in 2016/17 (due to legacy RO bands being higher in 2015/16 than 2016/17). There is not currently sufficient evidence to robustly estimate which effect might dominate; therefore, we have assumed no net impact on overall solar PV deployment in 2015/16. Hence, there is currently no monetised impact of this policy, in terms of either carbon emissions or generation costs.
20. **Given this uncertainty, we are seeking evidence from stakeholders on the impact that re-banding may have on 2015/16 solar PV deployment, in order to help estimate the monetised costs of re-banding.**

Monetised Impacts

Costs

21. Given it has not been possible to estimate potential reductions in solar PV deployment resulting from this policy, we have not monetised the potential additional carbon emissions from additional capacity, which may be required to meet demand otherwise served by solar PV generation.

Benefits

22. Under option 2, there will be a reduction in LCF support costs. However, this represents a transfer from generators to consumers. For this reason, we have not included the reduction in LCF support costs in the cost-benefit analysis of this policy on page 2 of this impact assessment.
23. Nevertheless, we have monetised the impact of that this policy could have on future LCF support costs, summarised below and set out in further detail in Annex A.

Reduction in LCF Support

24. Relative to the counterfactual, option 2 will reduce LCF spending. Firstly, projects which continue to deploy under the RO in 2015/16 will receive a lower ROC band. Secondly, those developers which choose to deploy under FITs will receive a lower level of support than the RO bands available in the “do nothing” scenario¹⁶.

¹⁶ Under the proposed RO bands, solar PV generators would receive £34/MWh compared with £39/MWh available under FITs until the end of December 2015

a) *Reduction in RO support for un-grandfathered projects*

25. We have modelled two LCF cost savings scenarios – one based on “high” RO solar PV deployment, and the other based on “low” RO solar PV deployment. We have based our planning application assumptions on the November publication of the DECC’s Renewable Energy Pipeline Database (REPD)¹⁷.
26. Solar PV projects applying for planning permission from 23 July 2015 onwards will be eligible for the new RO support rate, if they accredit under the RO in 2015/16. The November publication of REPD shows that, in total, around 0.75GW of solar PV capacity applied for planning permission since the consultation was published on the 22nd July.
27. We also expect that some projects applying for planning permission in subsequent months (i.e. November and beyond) may still be able to commission in 2015/16. We have assumed that a proportion of solar PV projects can commission within 3 months of applying for planning permission. Therefore, we have assumed that a proportion of projects applying for planning permission in November and December may also commission in 2015/16.
28. The November edition of REPD does not include data for projects applying for planning permission in November, and we do not yet know what will happen in December. We have therefore assumed that in November and December the amount of capacity applying for planning permission is consistent with monthly capacity applying for planning permission before 22 July, which has been adjusted for monthly variations observed in the last full year’s (2014/15) planning application data.
29. Solar PV projects which do not meet the grace period (significant financial commitment) criteria face a higher risk of not commissioning by 31 March 2016 if they submit their planning applications in later months, as there may not be sufficient time in which to secure planning consent and construct before the RO closure. We have therefore reduced the number of planning applications which successfully deploy in 2015/16 across time – with an initial rate of 60% in our “high” scenario and 30% in our “low” scenario (applied to those projects which have submitted their planning application after 23 July 2015, of which there are estimated to be 1.2GW by the end of 2015/16). This declines to 0% by January, so it is assumed that nothing that applies for planning permission in 2016 will be able to deploy under the RO in 2015/16.
30. Therefore, our “low” scenario assumes that, of the capacity that has applied for planning permission after 22 July 2015, **50MW** will deploy under the RO in 2015/16 and our “high” scenario assumes that **235MW** of this capacity will deploy under the RO in 2015/16. This capacity will receive a lower level of support in Option 2 than in the “do nothing” scenario, **reducing LCF spending by between £15m and £68m** in NPV terms.
31. These savings represent a transfer from generators to consumers. We have therefore not included these savings in the overall cost-benefit-analysis of this policy.

Table 3: Impact of Lower Support for RO Projects

Scenario	Modelled RO Deployment	Lifetime Reduction in LCF Support Costs (£11/12; NPV)
Low	50MW	£15m
High	235MW	£68m

b) *Projects choosing to accredit under FITs*

32. Solar PV projects which commission in 2015/16 under the RO, and which are not eligible for grandfathering, will receive a lower rate of RO support (0.8 ROCs per MWh, compared with 1.3

¹⁷ <https://www.gov.uk/government/collections/renewable-energy-planning-data>

or 1.5 ROCs per MWh for ground-mounted and building mounted installations under the “do nothing” scenario).

33. However, stand-alone FITs support available until the end of December is higher than the proposed ROC rates. Under the proposed RO bands, we estimate that solar PV generators would receive £34/MWh, compared with £39/MWh¹⁸ available under FITs. Therefore, we expect some projects of 5MW and smaller (hence eligible for FITs) which would have deployed under the RO in the absence of intervention, to accredit instead under FITs.
34. As larger-scale developers have previously preferred to deploy under the RO, we have no evidence on which to model the number of developers who may now opt for FITs. However, based on the relative support levels available under the two schemes, our “low” RO scenario assumes that 75% of projects opt for FITs and 25% of projects opt for the RO, while our “high” RO scenario assumes that 50% of projects opt for FITs and 50% of projects opt for the RO.
35. Our “low” scenario assumes that 150MW will deploy under FITs instead of the RO and our “high” scenario assumes that 235MW will deploy under FITs instead of the RO. The impact of these projects moving from the RO (as we assume they would be under the “do nothing option, where support levels are higher) to FITs (where they receive lower levels of support, compared with the “do nothing” option) is to **reduce LCF spend by between £7m** in net present value terms (in the “low” scenario) **and £11m** in net present value terms (in the “high” scenario).
36. These savings represent a transfer from generators to consumers. We have therefore not included these savings in our overall cost-benefit analysis of this policy.

Table 4: Impact of Lower Support for Projects Switching to FITs from RO

Scenario	Modelled FITs Deployment	Lifetime Reduction in LCF Support Costs (£11/12; NPV)
Low	150MW	£7m
High	235MW	£11m

Therefore, the combined net present value of Option 2 is to reduce LCF spending by between £21m and £79m in net present value terms, compared with the ‘do nothing’ option.

While implementing Option 2 reduces LCF spending, reductions in support costs represent a transfer from generators to consumers. For this reason we have not included reductions in LCF spending in our overall cost-benefit-analysis of implementing Option 2.

Annex A sets out the modelling assumptions and methodology used to calculate the reduction in support costs in more detail.

4. Non-monetised Impacts

50. The monetised costs and benefits included in this impact assessment do not include wider impacts, such as macroeconomic impacts, administrative costs incurred by Ofgem and impacts on other renewables investment. Given the amount of solar PV capacity affected by the proposed intervention, these are likely to be small, and are outlined below.

¹⁸ Assumes a stand-alone FITs tariff of 4.28/kWh and a ROC price of £38.69 inflated by 10% to account for headroom; all figures are in £2011/12 prices

Costs

51. Macroeconomic impacts: Growth in the UK solar PV sector is anticipated to be lower under Option 2. However, some resources are likely to be redeployed into other sectors, indicating that any net impact on GDP is likely to be small. While this could reduce the number of people employed in the solar sector, the net impact on UK-wide employment is uncertain.
52. Administrative costs: Ofgem may face one-off administrative costs from the grace periods policy. These costs are paid for through the buyout fund and so do not increase the overall costs of the scheme, but instead mean those electricity suppliers that submit ROCs receive slightly less back from the buyout fund than they would have done otherwise. To put this into context, Ofgem's administration cost for the RO in 2014/15 was £3.9m, which represents 0.12% of the scheme¹⁹.
53. Impact on other renewables investment: There is a risk that intervention under the RO increases uncertainty around support for renewables deployment in the UK, beyond the impact on solar. Developers may put their plans on hold until there is certainty about the scale of any potential future CfD allocation rounds. However, the action to manage spending under the RO is necessary to manage future funding under the LCF across the renewables sectors. Solar PV at 5MW and below will remain able to deploy under the Feed-in Tariff, subject to the outcome of the FIT review, published alongside this consultation.
54. Impact on consumers' bills. We have assessed the reduction in consumers' bills from implementing option 2. Due to the relatively small impact on overall LCF spending, the policy is likely to result in a very small reduction to average annual household bills²⁰.

5. Summary

55. The preferred option is Option 2 – to re-band support rates for building and ground-mounted projects 5MW in size and smaller which did not meet the grace-period eligibility criteria set out on 22 July 2015, to 0.8 ROCs per MWh for 2015/16.
56. This option reduces solar PV support costs, and **we estimate that the reduction in LCF spending could be between £21m and £79m in net present value terms.**
57. However, there is uncertainty around the amount of solar PV deployment which could come forward in 2015/16 under the new proposed RO bands. Our best estimate of the potential reduction in LCF spending - **£50m in net present value terms** - is based on the mid-point of the low-high range.
58. The reduction in LCF spending that has been modelled in this impact assessment has not been included in the overall cost-benefit analysis of implementing option 2, as any reduction in support costs represents a transfer from generators to consumers, hence not a net benefit to society.
59. 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. Hence, there is currently no monetised impact of this policy, in terms of either carbon emissions or generation costs. Stakeholders are therefore invited to submit evidence on the impact that re-banding will have on 2015/16 solar PV deployment.

¹⁹ <https://www.ofgem.gov.uk/ofgem-publications/89616/commentperiodon2014-15roadmincosts.pdf>

²⁰ We have not provided a quantitative assessment of the impact on consumer bills, to avoid spurious accuracy.

Annex A: Methodology and Modelling Assumptions

Modelling Assumptions

1. To calculate the LCF savings from Government intervention, we modelled the amount of capacity which could commission under the new lower ROC bands, as well as the amount of capacity which, after intervention, may choose to accredit under FITs.
2. We have assumed that projects applying for planning permission after 22 July 2015 do not meet the grace-period eligibility criteria, and therefore are eligible for the proposed RO support rates. These projects may continue to deploy under the RO at the proposed support rates or may choose to accredit under FITs, given support under FITs is higher for projects commissioning until the end of December. In both cases, support costs are lower than ROC rates available in the absence of intervention.

Renewable Energy Planning Database (REPD)

3. Our capacity estimates are based on observed planning applications for July, August and September 2015. For subsequent months, we have used projected planning applications based on the monthly average of planning applications made before 22 July, adjusted by seasonal variations in planning applications observed in 2014/15.
4. Our calculations suggest that around 1.2GW of capacity could apply for planning permission, between 23 July and 31 December 2015. We have only included planning applications up to the end of December, as anecdotal evidence suggests that developers require at least three months from the date of planning application to develop solar PV projects. Projects applying for planning permission from January 2016 onwards would therefore be unable to commission before the RO closes on 31 March 2016.
5. REPD data shows that not all projects in planning successfully commission. In previous years, 60%²¹ of projects applying for planning permission have deployed, and we have used this conversion rate in our high scenario. In our “low” scenario, developers have less time in which to secure planning consent, so we have assumed that 30% of projects which have applied for planning permission end up commissioning by the end of the year.
6. We also have assumed that fewer projects applying for planning permission in later months will successfully deploy as projects have less time in which to commission. We have therefore assumed that the commissioning rates in the high (60%) and low (30%) scenarios fall in a straight line over time.

Developer’s Choice of Scheme

7. FITs support rates are higher than the proposed RO bands until the end of December 2015. Therefore our modelling assumes that some solar PV developers who would otherwise (in the “do nothing” option) choose to deploy under the RO, instead choose to accredit under FITs. In our “low” scenario, we have assumed that 75% of projects eligible for the proposed RO bands choose to accredit under FITs and that 25% of projects opt for the RO. In our “high” scenario, we have assumed that 50% of projects opt for FITs, and 50% of projects opt for the RO.

²¹ We have calculated the commissioning rates on the basis of REPD data, where the commissioning rate is defined as the proportion of projects in planning which successfully deploy. Commissioning rates have been forecast in a straight line from past data for the years 2014/15 and 2015/16. The commissioning rate in our high scenario (60%) is based on the average commissioning rate of years 2013/14, 2014/15 and 2015/16. In the low scenario, we have assumed a commissioning rate half of that assumed in the high scenario.

Tables 5 and 6: Summary of Modelling Assumptions²²

Low Deployment Scenario (table 3)

Capacity applying for planning permission (23 July-31 December 2015)	Percentage of projects in planning successfully deploying ²³	Capacity expected to successfully deploy in 2015/16	Developer's preference of scheme	RO Capacity	FITs Capacity
1,220MW	30%	200MW	75% FITs / 25% RO	50MW	150MW

High Deployment Scenario (table 4)

Capacity applying for planning permission (23 July-31 December 2015)	Percentage of projects in planning successfully deploying ²⁴	Capacity expected to successfully deploy in 2015/16	Developer's preference of scheme	RO Capacity	FITs Capacity
1,220MW	60%	470MW	50% FITs / 50% RO	235MW	235MW

Methodology Used in Calculating Cost Savings

8. Cost savings have been calculated both for projects which continue to deploy under the RO (but which receive a lower RO support rate than that available currently under the "do nothing" option), as well as for those projects which choose instead to accredit under FITs (and which receive lower support under the FITs than is currently available under the RO in the "do nothing" scenario).

Cost Savings from Lower RO Support Rates

9. We have calculated cost savings for those projects which continue to deploy under the RO by multiplying the difference in support rates by the generation associated with each of the RO deployment scenarios.
10. As ground-mounted installations have typically deployed under the RO we have assumed that RO generators receive 1.3 ROCs per MWh under the "do-nothing" scenario, and 0.8 ROCs per MWh in Option 2.
11. RO support costs have been calculated on the basis of a £38.69 ROC price (2011/12 prices), which has been inflated by 10% to account for headroom.
12. Consistent with Arup's view of solar PV levelised costs, we have assumed a load factor of 11.1%.

Cost Savings from Projects Accrediting Under FITs

13. As support levels are higher under FITs compared with current RO support available in the 'do nothing' scenario (until the end of December 2015), we have assumed that some developers who would otherwise have commissioned under the RO in the 'do nothing' option, choose to accredit under FITs.

²² Capacities have been rounded to the nearest 10MW

²³ Tapered to fall to 0% by the end of December 2015

²⁴ Tapered to fall to 0% by the end of December 2015

14. To calculate these savings, we have multiplied the difference between stand-alone solar PV support costs under FITs and the current RO support rate available in the 'do nothing' scenario, against the amount of generation associated with the FITs deployment assumed in each scenario.
15. We have assumed a FITs tariff²⁵ of £39/MWh, and as most RO deployment has historically been ground-mounted, we have assumed that developers receive a ROC rate of 1.3 ROCs per MWh in the 'do-nothing' scenario.
16. Consistent with Arup's view of solar PV levelised costs, we have assumed a load factor of 11.1%.

Choice of Cost Assumptions

17. When RO solar PV support rates were last set in 2012, they were modelled for projects of all sizes, including those larger than 5MW. The proposed RO bands included in Option 2 apply to projects of 5MW in size or smaller. Given these projects are also eligible to accredit under FITs, we have considered the suitability of using FITs data²⁶ (from WSP Parsons-Brinckerhoff) published in August 2015 versus the suitability of using Arup cost data²⁷.
18. Our analysis suggests that the assumptions used to calculate Arup data are more consistent with the attributes of projects that are expected to commission under the proposed RO bands. The average size of a typical Arup ground-mounted installation is 3.6MW, compared with 1.3MW for large scale projects used to calculate WSP Parsons Brinckerhoff costs. As the average size of projects eligible for the new RO bands (those applying for planning permission after 22 July) is over 4MW, the Arup data is assumed to be more appropriate for modelling new support rates.
19. Furthermore, we have benchmarked Arup's cost assumptions against external sources such as cost assumptions published by the International Energy Agency, the Solar Trade Association and Bloomberg New Energy Finance, and have found that Arup costs are in line with market expectations for the size of projects which typically accredit under the RO.
20. We have also considered the case for modelling support rates using lower load factors, modelled by Parsons Brinckerhoff for FITs projects. Our analysis of ROCs issued by solar PV projects equal to or less than 5 MW in size suggests that RO projects have load factors consistent with that modelled by Arup (11.1%).
21. We have therefore modelled the proposed ROC bands (0.8 per MWh for both ground-mounted and building mounted installations 5MW or smaller in size) on the basis of Arup cost data published alongside this Impact Assessment, and an 11.1% load factor.
22. As part of the Government's consultation on re-banding support for solar PV, we invite stakeholders to submit evidence on the costs of solar PV generation, for projects 5MW or smaller in size.

²⁵ Based on the FITs tariff available until the end of December 2015 (https://www.ofgem.gov.uk/sites/default/files/docs/2015/10/fit_payment_rate_table_for_publication_1_january_2016_pv_tariffs.pdf); support rates have been deflated to £2011/12 prices using an RPI deflator.

²⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/456187/DECC_Small-Scale_Generation_Costs_Update_FINAL.PDF

²⁷ www.gov.uk/government/consultations/consultation-on-the-level-of-banded-support-for-new-solar-pv-under-the-renewables-obligation