

<b>Title:</b> Consultation on changes to financial support for solar PV projects at 5MW and below under the Renewables Obligation <b>IA No:</b> DECC0192 <b>Lead department or agency:</b> Department of Energy and Climate Change <b>Other departments or agencies:</b> HMT, Defra, CLG, BIS, Scotland Office, Welsh Office, Northern Ireland Office	<b>Impact Assessment (IA)</b>	
	<b>Date:</b> 13/07/2015	
	<b>Stage:</b> Development/Options	
	<b>Source of intervention:</b> Domestic	
	<b>Type of measure:</b> Primary legislation	
<b>Contact for enquiries:</b> christian.milhan@decc.gsi.gov.uk		

**Summary: Intervention and Options** **RPC:** 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, One-Out?	Measure qualifies as One-Out?
£65m	N/A	N/A	No	N/A

**What is the problem under consideration? Why is government intervention necessary?**  
 Renewable electricity deployment is currently supported through the Renewables Obligation, Contracts for Difference, and Feed In Tariffs. This includes solar projects at or below 5MW capacity. The costs of these schemes are managed through the Levy Control Framework, which sets annual limits on the overall costs imposed on consumers by DECC's levy funded policies. In the absence of intervention, it is likely that there will be significantly higher deployment of and spending on solar than previously expected, placing pressures on spend. In addition, costs of solar have fallen significantly since support levels were set. Government intervention is therefore required to reduce the spending risks under the Levy Control Framework.

**What are the policy objectives and the intended effects?**  
 The proposed interventions intend to limit solar deployment and spending under the Renewables Obligation, while not harming projects that have already made significant financial commitments. This is to limit the impact on the LCF of significantly greater solar deployment than previously anticipated.  
  
 The preferred option would result in a reduction in deployment of solar projects at or below 5MW under the Renewables Obligation compared to current forecasts, which would reduce spend on this technology.

**What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)**  
 To limit the deployment of solar PV at 5MW or below, the following proposals were considered:  
 - Option 1: Do Nothing;  
 - Option 2: Early closure to the RO from 1 April 2016, combined with the removal of grandfathered support for new projects from 22 July 2015; and  
 - Option 3: Capacity or supplier cap.  
  
 Option 2 is the preferred option, as it would limit spend on solar PV as early as possible, while providing certainty to projects that have made a significant financial commitment. Either intervention in option 2 on its own is unlikely to have as much of an effect as is intended.

**Will the policy be reviewed?** It will not be reviewed. **If applicable, set review date:** Month/Year

Does implementation go beyond minimum EU requirements?		Yes / No / N/A			
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	<b>Micro</b> No	<b>&lt; 20</b> Yes	<b>Small</b> Yes	<b>Medium</b> Yes	<b>Large</b> Yes
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)			<b>Traded:</b> N/A	<b>Non-traded:</b> 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: 21/7/15

# Summary: Analysis & Evidence

# Policy Option 1

**Description:** Early closure to the RO from 1 April 2016 combined with the removal of grandfathering of support from 22 July 2015

## FULL ECONOMIC ASSESSMENT

<b>Price Base</b> 2011/12	<b>PV Base</b> Year 2016	<b>Time Period</b> Years 25	<b>Net Benefit (Present Value (PV)) (£m)</b>		
			<b>Low:</b> £40	<b>High:</b> £100	<b>Best Estimate:</b> £65

<b>COSTS (£m)</b>	<b>Total Transition</b> (Constant Price) Years	<b>Average Annual</b> (excl. Transition) (Constant Price)	<b>Total Cost</b> (Present Value)
<b>Low</b>	N/A	5	<b>75</b>
<b>High</b>	N/A	12	<b>185</b>
<b>Best Estimate</b>	N/A	8	<b>115</b>

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

The monetised costs are the increase in costs of EU Emissions Trading Scheme allowance (EUA) purchases to the UK power sector compared to the 'Do Nothing' option. As less solar PV is deployed, generation from fossil fuels increases and as a consequence more EUAs are purchased.

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

Wider impacts of a reduction in solar deployment (e.g. on employment in the sector). There may also be some air quality impacts due to increased fossil fuel generation. There may also be some administrative costs to Ofgem.

<b>BENEFITS (£m)</b>	<b>Total Transition</b> (Constant Price) Years	<b>Average Annual</b> (excl. Transition) (Constant Price)	<b>Total Benefit</b> (Present Value)
<b>Low</b>	N/A	5	<b>115</b>
<b>High</b>	N/A	12	<b>285</b>
<b>Best Estimate</b>	N/A	7	<b>180</b>

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

The monetised benefits are lower resource costs of generating electricity through lower cost alternatives (primarily gas-fired generation) rather than solar PV as a result of reduced solar PV deployment compared to the 'Do Nothing' option.

Note that while the average annual costs and benefits in constant prices are approximately equivalent, the benefits accrue in the short term while the costs are in the longer term, meaning the NPV is positive.

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

Wider system impacts of any decrease in system balancing costs due to lower levels of intermittent solar PV generation.

In the 'do nothing' option, there is greater pressure on the LCF and therefore also on consumer bills – the intervention reduces deployment and therefore spend under the LCF and impact on consumer bills.

The potential indirect impacts on other renewables investment have not been considered.

Key assumptions/sensitivities/risks

Discount rate (%)

The high and low ranges reflect uncertainty around:

- The level, speed and cost of future solar PV deployment.
- The level of future deployment of other renewable technologies to 2020.
- The level of future fossil fuel prices.

- There is a risk that solar PV deployment that would have come forward under the RO either accelerates and comes forward in 2015/16, or transfers to Feed-in Tariffs. Both effects would reduce savings.

## BUSINESS ASSESSMENT (Option 1)

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

# 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 including solar PV at or below 5MW. 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 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 1<sup>st</sup> 2013 to 31<sup>st</sup> March 2017.<sup>1</sup>
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 31<sup>st</sup> 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 (>5MW) solar in October 2014.<sup>2</sup> 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 wind.<sup>3</sup>

# 2. Rationale for intervention/policy objective

6. The Government Response to the RO Banding Review and the last comprehensive banding review of RO support in December 2012 announced RO bands for the period 1 April 2013 to 31 March 2017 that will contribute towards growth in renewable electricity deployment to help meet the UK's 2020 renewable energy targets. DECC stated that the levels of ROC support were intended to encourage slow but steady deployment of solar PV. Support was reducing over the period, from 1.6 ROCs per MWh in 2013/14 to 1.2 ROCs in 2016/17, reflecting what was anticipated to happen with 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 PV, confirming 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.

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<sup>1</sup> <https://www.gov.uk/government/consultations/renewables-obligation-banding-review>

<sup>2</sup> <https://www.gov.uk/government/consultations/consultation-on-changes-to-financial-support-for-solar-pv>

<sup>3</sup> <https://www.gov.uk/government/news/changes-to-onshore-wind-subsidies-protect-investment-and-get-the-best-deal-for-bill-payers>

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 until 31 March 2017.
9. However, the Government stated 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 (see Table 1 below). At the time of the RO closure for projects greater than 5MW, it was estimated that 300-500MW of solar at 5MW and below would come forward in each of 2015/16 and 2016/17.
11. DECC has updated its assessment of the solar PV pipeline using the Renewable Electricity Planning Database (REPD), industry commentary and discussion with solar experts. While there is considerable uncertainty about solar deployment in general, the evidence indicates that the potential for deployment is increasing substantially. The updated estimates now range from 800MW to 2GW each year in 2015/16 and 2016/17, and there is also a possibility that deployment could be as high as 3GW, according to some industry sources.
12. Combined with higher deployment than previously anticipated, there is also evidence from the first CfD allocation round to suggest that solar PV costs have dropped significantly since the last banding review completed in 2012.
13. The December 2013 Electricity Generation costs report concluded that for solar projects commissioning in 2016 the levelised cost would be £104/MWh, with a range from £97/MWh to £111/MWh,<sup>4</sup> falling to £72-£81/MWh by 2025. The fact that the 2014 CfD allocation round saw three solar projects clearing in 2016/17 at £79.23/MWh<sup>5</sup> suggests that levelised cost reductions in the solar industry have occurred at a much faster rate than DECC previously estimated when setting the support rate under the RO. This suggests that some solar projects are receiving more support under the RO than would be required for them to construct.
14. In the absence of intervention, it is therefore likely that deployment is higher than the previous estimates. The updated estimates are set out in the table below.

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[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/269888/131217\\_Electricity\\_Generation\\_costs\\_report\\_December\\_2013\\_Final.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269888/131217_Electricity_Generation_costs_report_December_2013_Final.pdf). This range of levelised costs reflects variation in capital costs for projects commissioning in 2014 at the technological specific hurdle rate (estimates are in 2012 values). In addition to capital costs, solar PV levelised cost estimates are particularly sensitive to assumptions around hurdle rates, load factors, and cost reduction trajectories. DECC is currently undertaking an update to its generation cost estimates, however these are not yet available.

<sup>5</sup> <https://www.gov.uk/government/statistics/cfd-auction-allocation-round-one-a-breakdown-of-the-outcome-by-technology-year-and-clearing-price>  
There were also two projects that cleared in 2015/16 at £50, though neither of these projects signed their contracts. It is important to note that there is a difference between the strike price for CfDs and the levelised cost.

**Table 1: Deployment and annual spend on solar PV projects at or below 5MW (2011/12 prices)<sup>6</sup>**

			Low	Medium	High
DECC view - from IA October 2014	2015/16	Deployment (MW)	300	400	500
		Spend in 2020/21 (£m)	15	20	25
	2016/17	Deployment (MW)	300	400	500
		Spend in 2020/21 (£m)	15	20	25
DECC view - June 2015 update	2015/16	Deployment (MW)	800	1,250	2,000
		Spend in 2020/21 (£m)	45	65	110
	2016/17	Deployment (MW)	800	1,250	2,000
		Spend in 2020/21 (£m)	40	60	100
Difference in spend in 2020/21 (£11/12m)	2015/16, new vs old deployment estimate		+25	+45	+80
	2016/17, new vs old deployment estimate		+25	+40	+75

15. For consumers, the equivalent impact on average household electricity bills for the old deployment projection is £0.20 in 2020/21, based on the medium deployment scenario (range from £0.20 to £0.30, all figures rounded to the nearest 10p). In terms of the revised deployment scenarios, the equivalent impact on average household electricity bills is £0.80 in 2020/21, also based on the medium deployment scenario, with a range from £0.50 to £1.20, and as high as £1.80 if 3GW of solar comes forward. All bill impact figures are in 2014 prices.

### 3. Description of options considered

16. The consultation document describes the following options for limiting deployment of solar PV at or below 5MW under the RO:
- Option 1 : Do Nothing;
  - Option 2: Early closure to the RO from 1 April 2016, combined with the removal of grandfathered support for new projects from 22 July 2015; and
  - Option 3: Capacity or supplier cap.

#### Option 1 – ‘Do Nothing’

17. Under this option, no further intervention would be taken on solar at or below 5MW within the RO, and such projects would continue to be able to accredit until the end of March 2017. As

<sup>6</sup> Please note that in this table, and throughout the document, figures are given to the closest £5m. Figures throughout may not sum precisely due to rounding.

set out above, we would anticipate 800MW – 2GW to accredit each year, with a possibility that 3 GW accredits each year. This would increase the size of the RO relative to previous estimates, and mean that a greater proportion of the LCF is spent on the RO.

18. From here on, 800MW per year is referred to as the “low” scenario, 1,250MW is the “medium” scenario, 2GW is the “high” scenario, and 3GW is the “high-high” scenario.

### **Option 2: Early closure to the RO from 1 April 2016, combined with the removal of grandfathered support for new projects from 22 July 2015**

19. The early closure to accreditation for new solar projects of 5MW and below (and additional capacity added to an accredited solar PV station up to 5MW) would apply from 1 April 2016, thus projects (or additional capacity) not accrediting by 31 March 2016 would not be eligible for support under the RO.
20. New solar PV projects of 5MW and below (and additional capacity added to an accredited solar PV station from 1 April 2016 up to 5MW) will continue to be eligible to enter the RO after 31 March 2016 (until the full closure of the RO on 31 March 2017) if one of the following criteria is met:
- Preliminary accreditation under the RO has been obtained for the station (or additional capacity) on or before 22 July 2015;
  - Significant financial commitments<sup>7</sup> have been made on or before 22 July 2015;
  - Delays in the planned grid connection to the electricity grid occur due to factors outside developers’ control.
21. In order to benefit from these grace periods, a station must be commissioned and accredited by 31 March 2017 and all of the other usual RO eligibility requirements must be met.
22. In addition, in order to avoid potential overcompensation of additional solar deployment before the early closure, it is proposed to remove grandfathering for solar PV projects that are not accredited under the RO as of 22 July 2015. As part of this consultation we are proposing to test the evidence discussed above, that the costs to developers associated with the deployment of solar PV have fallen further and faster than previously anticipated. Subject to this consultation, along with the further investigation of deployment costs presently being undertaken through an independent study we will publish proposed bandings for new solar PV projects of 5MW and below for further consultation. We propose that grandfathering policy will continue to apply to developers of new solar PV projects of 5MW and below (and additional capacity) that satisfy the criteria for the significant financial commitment grace period for closure.

### **Option 3: Capacity or supplier cap**

23. We have considered two other options for intervention with respect to solar PV projects of 5MW and below as alternatives to the proposed option of early closure from 1 April 2016 combined with the removal of grandfathered support for new projects from 22 July 2015. They are:

- A capacity cap on new solar PV projects of 5MW and below entering the RO from a particular date; and
- A supplier cap on new solar PV projects of 5MW and below entering the RO from a specified date.

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<sup>7</sup> The consultation proposes that developers will be able to qualify for this where they can provide evidence of a planning application, grid connection agreement and land rights as of 22 July 2015.

24. A capacity cap would set out the maximum level of new solar PV capacity that the Government considered affordable within the context of the LCF. Once the cap was reached, no more solar PV capacity of 5MW and below would be eligible to come forward under the RO.
25. A supplier cap (also known as a compliance cap) would operate by limiting the proportion of their annual renewables obligation that electricity suppliers can meet using ROCs issued for a specific technology. If it were to be introduced, it would be done for new ground-mounted and building-mounted solar PV projects of 5MW and below, entering the RO from 1 April 2016 as well as applying to any additional capacity added to an accredited solar PV station from 1 April 2016.
26. The Government has decided not to introduce a capacity or supplier cap. We consider that these measures will not provide a more effective means of controlling costs from solar PV than the proposed option. The concept of a capacity cap is based on bringing forward a specified amount of capacity beyond what is already in the pipeline. However, the amount of solar PV already in the pipeline creates significant affordability concerns and may make the idea of an additional cap superfluous. Similarly, the level of a supplier cap must be fixed in advance in legislation. Given the amount of solar PV already in the pipeline, and the speed at which developers are able to deploy solar PV stations, it is possible that the limits of affordability would have been reached before any further capacity could be accredited under a supplier cap.
27. Because these options have been rejected, the costs and benefits have not been assessed in the sections below.

#### **4. Impact of shortlisted options**

28. This section outlines the monetised and non-monetised costs and benefits of option 2 – the early closure to the RO in 2016/17 combined with a banding review combined with an end to grandfathering in 2015/16. This is assessed against the baseline of doing nothing, as set out in option 1.
29. Option 3 is not included, given that it has been rejected in the above section.

##### **Option 1 – ‘Do Nothing’**

30. If there is no intervention, it is currently estimated that between 800MW and 2GW of solar comes forward, and the possibility that 3GW comes forward.
31. These deployment scenarios for 2016/17 equate to a spend range of around £40m to around £100m total in 2020/21 and per year for the duration of projects’ support under the RO. If deployment were as high as 3GW, spending would increase to around £150m additional per year.
32. This is the baseline against which the interventions are assessed.

##### **Option 2: Option 2: Early closure to the RO from 1 April 2016, combined with the removal of grandfathered support for new projects from 22 July 2015**

33. This option is (i) early closure of the RO to solar PV of 5MW and below from 1 April 2016, combined with (ii) removal of grandfathering for projects from 22 July 2015.

34. The two strands have different effects on deployment and thus spend.
- (i) *Early closure*
35. The early closure to the RO will take effect from 1 April 2016 and would be expected to result in no solar deployment in 2016/17 under the RO. This would reduce deployment by an estimated 1,250MW (medium scenario) with the low estimate being 800MW and the high estimate 2GW (see Table 2 below). There is also the possibility that it would reduce deployment by 3GW, in the high-high deployment scenario.
36. It is possible that projects that qualify for a grace period may still be able to deploy in 2016/17. We would, however, expect that projects qualifying for the grace period to deploy in 2015/16, given the speed of solar deployment at this size.
37. Support for solar PV projects of 5MW and below remains open under the Feed In Tariff, pending a review of the FITs scheme, thereby potentially offsetting some of the financial control intended through these measures.<sup>8</sup>
38. The early closure to the RO would lead to a reduction of spending under the LCF of between £40m and £100m in 2020/21 and per year for the duration of projects' support under the RO (see Table 2 below), in the low and high scenarios. In the high-high case, the early closure could reduce spending under the LCF by £150m.
39. For consumers, the impact on average household electricity bills could be a decrease of £0.80 in 2020/21, based on the medium deployment scenario, with a range from £0.50 to £1.20. Figures are again rounded to the nearest 10p, and in 2014 prices.

**Table 2: Solar PV deployment at 5MW and below from 2016/17 onwards and associated spend in 2020/21 on updated deployment projections under Option 2 (2011/12 prices)**

	Deployment scenario	Low	Medium	High	High-high
Option 1 – Do Nothing	Deployment (MW)	800	1,250	2,000	3,000
	Spend in 2020/21 (£m)	40	60	100	150
Option 2 – closure solar PV at 5MW and below from 1 April 2016	Change in spend compared to 'Do Nothing' (£11/12m)	-40	-60	-100	-150

40. Given that solar projects with a capacity of 5MW and below can also deploy under FITs, there is the possibility that savings are not as high as set out above, as projects may transfer to FITs. It is difficult to say at this stage by how much this could reduce savings. However, significantly increased FIT deployment levels will lead to more rapid degeneration of tariffs, this will reduce levels of ground mounted deployment under the FIT and reduce the financial pressure caused by projects switching. This will be explored in more detail in the Government response to this consultation, and in light of the forthcoming FITs review.

(ii) *Removal of grandfathering*

<sup>8</sup> The Government is simultaneously consulting on the removal of pre-accreditation for FITs



41. The removal of grandfathering would take effect from the day of the publication of the consultation, alongside measures to close the RO to all solar developers from 1 April 2016. This would be followed by – subject to this consultation, along with the further investigation of deployment costs presently being undertaken through an independent study – a banding review for solar deployment that comes forward after 22 July 2015 and has not qualified for the exception to the removal of grandfathering.
42. Total deployment in 2015/16 is estimated to be between 800MW and 2GW, with the high-high scenario of 3GW. It is not possible to accurately quantify what proportion of the 2015/16 pipeline may be affected. A significant proportion of the estimated deployment may already have deployed prior to the launch of the consultation, which would be unaffected by this change. There may also be a significant amount that would qualify for the exception to the removal of grandfathering and also be unaffected by this change.
43. There is then uncertainty about the impact these changes may have on the decisions of individual developers – some may not go ahead as they do not have a certain level of support; others may continue to deploy anyway. There is also uncertainty about the outcome of a banding review and the level of new ROC bands. For illustration, a reduction in deployment of 100MW on current support levels would reduce spending by around £5m, and a reduction in support of 0.1 ROCs would reduce support by around £3m to £10m, based on the deployment rate of 800MW to 2GW.
44. Given the difficulties in estimating the impact of removing grandfathering and, depending on this consultation and the outcome of an independent study, conducting a banding review, DECC has not provided estimated impacts of the changes beyond the indicative figures set out in paragraph 43 (based on a change of 100MW or 0.1 ROCs). Deployment changes and spending reductions under the LCF resulting from this change only therefore cover the reduced deployment in 2016/17.

### **Monetised impacts**

45. The monetised costs and benefits associated with this option are set out below. The low, medium and high scenarios correspond to 800MW, 1,250MW and 2GW of deployment respectively per year. The monetised impacts are calculated in line with the DECC Greenhouse Gas appraisal guidance.

#### *Costs*

46. As less solar PV is deployed, generation from other electricity generating alternatives (including fossil fuel, renewables and other forms of low carbon generation) increases. This means that there are more CO<sub>2</sub> emissions than would be the case in the do nothing scenario. The proposed change is therefore anticipated to lead to an increase in CO<sub>2</sub> emissions of around 2.9m to 7.3m tonnes of CO<sub>2</sub> equivalent, taking into account all generation over the lifetime of the plants.
47. These additional emissions are valued at the DECC central traded carbon appraisal values. Over the lifetime, the present value of costs is estimated to be £115m (medium scenario), with a range of £75m (low scenario) to £185m (high scenario) of EU Emissions Trading Scheme Allowance (EUA) costs (see Table 3).

#### *Benefits*

48. The main benefit is the lower level of lifetime resource costs. This is the difference between the levelised cost estimates of solar PV projects at or below 5MW and the long-run variable cost (LRVC) of electricity supply. The LRVC represents the average cost of providing a MWh of electricity, across a range of generating technologies (both renewable and non-renewable).
49. Replacing some relatively more expensive solar PV deployment with the relatively less expensive grid average leads to a reduction of resource costs. Over the lifetime, the present value of this benefit is estimated to be £180m (medium scenario), with a range of £115m (low scenario) to £285m (high scenario).
50. The net present value (NPV) of Option 2, relative to Option 1, is set out in table 3 below. This is calculated as the NPV of lifetime resource costs under Option 2 relative to Option 1, less the NPV of lifetime EUA. For example, in the medium scenario this is the benefit of lower lifetime resource costs of £180m less the additional EUA costs of £115m which gives an NPV of £65m.
51. In conclusion, it is preferable to take action under the RO to limit spend (and therefore deployment) of solar PV projects at or below 5MW compared to the Do Nothing option.

**Table 3: Net Present Value of Option 2 (2011/12 prices) relative to do nothing (£11/12m)**

<b>Deployment Scenario</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
Lifetime resource costs, present value	+115	+180	+285
Lifetime EUA costs, present value	-75	-115	-185
<b>NPV (£m, 2011/12 prices)</b>	<b>+40</b>	<b>+65</b>	<b>+100</b>

### **Non-monetised impacts**

#### *Costs*

52. It should be noted that the monetised costs and benefits above do not include several wider impacts, principally those relating to security of supply, the UK meeting its environmental targets, and potential macroeconomic effects. These are covered below, though given the level of solar PV deployment projected in this impact assessment, these impacts are likely to be small.
53. Security of supply impacts: The Do Nothing option (option 1) would marginally reduce reliance on imported fossil fuels relative to Option 2, but would also increase the amount of intermittent generation, which would increase the need for balancing services, back-up generation, interconnection, storage and/or demand-side response. The costs of any additional balancing services have not been quantified. They will depend on the overall level and composition of intermittent generation on the grid, meaning it is difficult to isolate the costs associated with solar PV alone.
54. Risk of missing 2020 renewables target: Option 2 marginally increases the risk of missing the 2020 renewables energy target and interim targets by reducing solar PV deployment under the RO in the UK compared to the do-nothing option. However, the risk of this occurring as a result of this action alone is considered to be small.
55. Macroeconomic impacts: Growth in the UK solar PV sector is anticipated to be lower under Option 2. However, certain resources are likely to be redeployed into other sectors, meaning

any net impact on GDP is likely to be very small. While this could reduce the number of people employed in the solar sector, the net impact on UK-wide employment is uncertain.

56. Environmental Issues: Option 2 will lead to lower levels of solar PV deployment and hence marginally increased carbon emissions within the UK power sector relative to the Do Nothing option, but these will be offset by decreases in emissions elsewhere in the EU within the capped EU-ETS traded emissions sector. It is therefore expected there will be no net impact on greenhouse gas emissions within the EU. Given the expected change in electricity generated through solar PV is small under Option 2, compared to total UK electricity generation, the resulting impact on air quality from a change in the generation mix is expected to be small.
57. 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 of the RO in 2014/15 was £3.9m, which represents 0.12% of the scheme.<sup>9</sup>
58. Ofgem is likely to incur a small administrative cost associated with identifying stations from whom grandfathering has been removed. However, as the detail of how this would be implemented is currently undecided, it is not possible to quantify the impact.
59. 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 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, later this year.

## 5. Summary

60. The preferred option is to close the RO to new build solar PV projects at or below 5MW from 1 April 2016. It reduces spending under the LCF and has a positive NPV. This is set out in Table 3.
61. Table 3 does not, at this stage, include the impact of the removal of grandfathering or the effects of a potential Banding Review. It also does not include the risk of deployment that would have come forward under the RO instead accrediting or pre-accrediting under FITs. The first of these could increase the savings under the LCF, while the second would reduce the savings.

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<sup>9</sup> <https://www.ofgem.gov.uk/ofgem-publications/89616/commentperiodon2014-15roadmincosts.pdf>