

Title: Comprehensive Review Phase 1- Consultation on Feed in Tariffs for solar PV

Impact Assessment (IA)

IA No: DECC0073

Date: 2/11/2011

Lead department or agency: DECC

Stage: Consultation

Other departments or agencies:

Source of intervention: Domestic

Type of measure: Secondary legislation

Contact for enquiries: Andrew Jones

Summary: Intervention and Options

RPC: RPC Opinion Status

Cost of Preferred (or more likely) Option

Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB in 2009 prices)	In scope of One-In, One-Out?	Measure qualifies as
£9,200m	£m	£m	No	In/Out/Zero Net Cost

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

Capital costs of Solar PV have fallen by at least 30% since FITs began in April 2010, which together with electricity price rises means that returns for PV investors at current tariff levels are higher than originally envisaged. Although the scheme as introduced included plans to degress tariffs from April 2012, this planned degression was only 8.5% p.a. (9% p.a. from 2015/16 to 2020/21), substantially below observed cost reductions. This will over-compensate those investing in PV under FITs, meaning that FITs does not represent value for money for energy consumers who meet the costs of the scheme through bills. Providing higher returns than originally intended will also increase solar PV uptake and, as a consequence, threaten the overall affordability of the FITs scheme and erode its value for money.

What are the policy objectives and the intended effects?

The objective of this review is to prevent a substantial increase in the subsidy costs of the FITs scheme as a result of overcompensation and hence higher than expected uptake of solar PV. This in turn will limit the impact of the scheme on electricity bills and ensure that Government can deliver the 10% saving on FITs costs in 2014/15 as announced at the Spending Review while also ensuring that funding remains available to support a range of technologies. The review also aims to strengthen the link between FITs and energy efficiency, thereby incentivising the take-up of other, more cost effective, carbon reduction measures.

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

The impacts of the 'Do Nothing' option are assessed in this Impact Assessment. This measures the cost of solar PV under current tariffs, with tariff degression at around 9% as originally planned.

The IA also considers the impacts of two scenarios where action is taken to reduce solar PV tariffs:

'Low tariffs early': tariffs are reduced 1 April 2012. Installations with an eligibility date on or after 12th December 2011 receive current tariffs until 31 March 2012, then the lower tariff.

'Low tariffs April 2012': tariffs for new installations are reduced 1 April 2012.

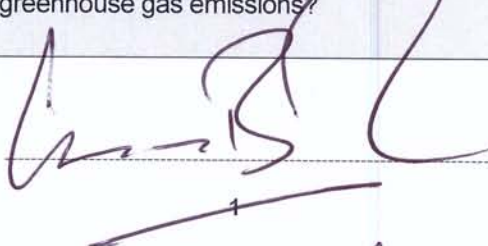
Tariffs for both options are intended to provide a return on capital of approximately 4.5% for solar installations up to 4kW and 5% for larger installations going forward, and so are degressed in line with costs. Both also feature new tariffs for multiple ('aggregated') installations- these are 80% of the non-aggregated tariff in each band,- and a minimum energy efficiency requirement for PV installations attached to a or wired to provide electricity to a building in order to be eligible for the new tariffs.

'Low tariffs early' is the preferred option because it offers the most certainty that the FITs scheme will be able to live within its spending review period budget. Alongside the reduction in tariffs, the energy efficiency requirement will strengthen links with DECC policy on domestic carbon reduction measures.

Will the policy be reviewed? It will 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.	Micro Yes	< 20 Yes	Small Yes	Medium Yes	Large Yes
What is the CO2 equivalent change in greenhouse gas emissions? (Million tonnes CO2 equivalent)			Traded: + 70		
			Non-traded:		

I have read the Impact Assessment



Date: 2/11/11

Summary: Analysis & Evidence

Policy Option 2

Description: Low Tariffs early (tariffs intended to provide an approximate 4.5-5% return from April 2012 onwards for installations with eligibility date post-12 December 2011 with future cost-based depression; energy efficiency requirement; multi-installation tariffs at 80% of standard tariffs)

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 35	Net Benefit (Present Value (PV)) (£m)		
			Low: 7,300	High: 10,300	Best Estimate: 9,200
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)	
Low			50	1,600	
High			60	2,200	
Best Estimate			60	2,000	
Description and scale of key monetised costs by 'main affected groups'					
The monetised cost of this option is the value of EUA purchases in the UK power sector as a result of lower PV deployment under reduced tariffs.					
Other key non-monetised costs by 'main affected groups'					
Costs for investors of demonstrating that property meets energy efficiency requirement e.g. obtaining EPC certificate. Sunk costs e.g. deposits. of investors who are not able to complete their installations and submit their application for accreditation before 12 December.					
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)	
Low			250	8,900	
High			360	12,500	
Best Estimate			320	11,300	
Description and scale of key monetised benefits by 'main affected groups'					
The benefit of this option is lower resource costs associated with PV as a result of lower deployment under reduced tariffs.					
Other key non-monetised benefits by 'main affected groups'					
By reducing the costs of PV under the FITs scheme, this policy will ensure that FITs can continue to support a portfolio of small scale low-carbon generation technologies going forward. Lower PV deployment will also avoid incurring some variable scheme administration costs. The policy could also help develop a supply chain that offers households a wide range of cost effective measures to lower their energy use and carbon emissions and incentivise additional uptake of Green Deal measures and associated carbon savings.					
Key assumptions/sensitivities/risks				Discount rate (%)	3.5
New tariffs assumed to reduce sub-4kW uptake by 70% and 4-50kW uptake by 95% from December 2011 to April 2012. Growth in uptake from 2012-13 onwards from FITs model applied to DECC projections of uptake to April 2012. EPC level C requirement reduces uptake by up to 92% 2012-13 onwards compared to uptake under proposed tariffs. Green Deal requirement has no impact on uptake. 'Best' estimate of uptake under energy efficiency requirement is mid-point of EPC and Green Deal scenarios. Comprehensive Review Phase 2 not accounted for. Future PV costs uncertain due to volatility in worldwide PV market.					

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs:	Benefits:	Net:	No	In/Out/Zero Net Cost

Summary: Analysis & Evidence

Policy Option 3

Description: Low Tariffs April (tariffs intended to provide an approximate 4.5-5% rate of return for new installations from April 2012 onwards with future cost-based depression; energy efficiency requirement; multi-installation tariffs at 80% of standard tariff)

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2011	Time Period Years 35	Net Benefit (Present Value (PV)) (£m)		
			Low: 7,100	High: 10,100	Best Estimate: 8,700
COSTS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)	
Low			50	1,600	
High			60	2,200	
Best Estimate			60	2,000	
Description and scale of key monetised costs by 'main affected groups'					
The monetised cost of this option is the value of EUA purchases in the UK power sector as a result of lower PV deployment under reduced tariffs.					
Other key non-monetised costs by 'main affected groups'					
Costs for investors of demonstrating that property meets energy efficiency requirement e.g. obtaining EPC certificate. Sunk costs e.g. deposits of investors who are not able to complete their installations and submit their application for accreditation before 1 April.					
BENEFITS (£m)	Total Transition (Constant Price) Years		Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)	
Low			250	8,700	
High			350	12,300	
Best Estimate			310	10,700	
Description and scale of key monetised benefits by 'main affected groups'					
The benefit of this option is lower resource costs associated with PV as a result of lower deployment under reduced tariffs.					
Other key non-monetised benefits by 'main affected groups'					
By reducing the costs of PV under the FITs scheme, this policy will ensure that FITs can continue to support a portfolio of small scale low-carbon generation technologies going forward. Lower PV deployment will also avoid incurring some variable scheme administration costs. The policy could also help develop a supply chain that offers households a wide range of cost effective measures to lower their energy use and carbon emissions and incentivise additional uptake of Green Deal measures and associated carbon savings.					
Key assumptions/sensitivities/risks				Discount rate (%)	3.5
Uptake to April 2012 assumed to reflect pattern of growth to date. Growth in uptake from 2012-13 onwards from FITs model applied to DECC projections of uptake to April 2012. EPC level C requirement reduces uptake by up to 92% 2012-13 onwards compared to uptake under proposed tariffs. Green Deal requirement has no impact on uptake. 'Best' estimate of uptake under energy efficiency requirement is mid-point of EPC level C and Green Deal scenarios. Comprehensive Review Phase 2 not accounted for. Future PV costs uncertain due to volatility in worldwide PV market.					

BUSINESS ASSESSMENT (Option 3)

Direct impact on business (Equivalent Annual) £m:			In scope of OI00?	Measure qualifies as
Costs:	Benefits:	Net:	No	In/Out/Zero Net Cost

Evidence Base

A. Strategic overview

1. A new system of feed-in tariffs (FITs) was introduced in Great Britain on 1 April 2010 to incentivise small scale (up to 5MW), low carbon electricity generation. This small scale FITs scheme works alongside the Renewables Obligation (RO), which is the primary mechanism to incentivise deployment of large-scale renewable electricity generation. These, together with the Renewable Heat Incentive (RHI), Renewable Heat Premium Payment and the Renewable Transport Fuels Obligation are needed to incentivise uptake of renewable energy technologies to meet the UK share of the EU renewable target of 15% renewable energy by 2020.
2. FITs are intended to promote take up of small scale low-carbon technologies by the public and communities as part of a portfolio approach to renewables and in order to:-
 - empower people and give them a direct stake in the transition to a low-carbon economy;
 - help develop a supply chain that offers households a wide range of cost effective measures to lower their energy use and carbon emissions; and
 - assist in public take-up of carbon reduction measures, particularly measures to improve the energy efficiency of buildings.
3. On 7 February 2011, the Secretary of State announced the start of the first comprehensive review of the FITs scheme. In doing so, he confirmed that the review would assess all aspects of the scheme including tariff levels, administration and eligibility of technologies, and would be completed by the end of the year, with tariffs remaining unchanged until April 2012, unless the review reveals a need for greater urgency.
4. As part of the comprehensive review, the Government gave fast-track consideration to large-scale (over 50kW) and standalone solar PV tariffs (as well as farm-scale anaerobic digestion) in response to evidence of a significant fall in PV costs and unanticipated uptake at this scale. The outcome of this review was announced on 9th June, and as a result, tariffs for large solar PV were reduced as follows:

Table 1: Revised tariffs for large-scale solar PV following fast track review (for installations with eligibility date on or after 1 August 2011)

Pre-1 Aug 2011		Current	
Scale	Tariff p/kWh	Scale	Tariff p/kWh
10-100kW	32.9	50-150kW	19
		150kW-250kW	15
100kW-5MW	30.7	250kW-5MW	8.5
Stand alone	30.7	Stand alone	8.5

Note: these are nominal tariffs in 2011-12 prices

5. On 31 October 2011 as part of Phase 1 of the review it was announced that the review would incorporate a further consideration of solar PV tariffs in response to

evidence of a significant fall in solar PV costs at all scales and higher than anticipated uptake, with a view to making any changes to tariffs on 1 April 2012. It is proposed that installations with an eligibility date between 12 December 2011 and 31 March 2012 would receive current tariffs in that period, and new tariffs thereafter. It was also announced that the review would consider an energy efficiency eligibility requirement for installations attached to or wired to provide electricity to a building, as well as a new tariff for multiple ('aggregated') installations that would apply to any solar PV installation where the FIT generator or nominated recipient already owns or receives FITs payments from one or more other PV installations, located on different sites. **This Consultation Stage Impact Assessment focuses on proposals announced on 31 October.**

B. Problem under consideration

6. As the Secretary of State's February 2011 announcement stated, it is crucial that we take a more responsible and efficient approach to public subsidy to ensure that consumers receive value for money. Last year's spending review made clear for the first time that there are clear spending parameters within which the FITs scheme must operate and set out the need to make 10% savings in 2014/15 (£40 million). As a result, the FITs scheme now has a defined budget within which it must operate¹:

Table 2: Feed in Tariffs budget for Spending Review period

<i>Budget (nominal, undiscounted, £m)</i>	2011-12	2012-13	2013-14	2014-15
Feed-in Tariffs	80	161	269	357

7. Since the comprehensive review was announced, DECC has been monitoring PV uptake closely. Evidence from this has shown that the number of solar PV installations is far ahead of projections made at the scheme's outset, and the rate of growth has been increasing particularly rapidly over the past three months. Research undertaken for DECC by Cambridge Economic Policy Associates (CEPA) and Parsons Brinckerhoff (PB) as part of the comprehensive review suggests that this is largely driven by significant, ongoing falls in the costs of installing a PV system, due to falling PV module costs worldwide and the development of the UK market for supply and installation². This, taken together with a 13% increase in the retail electricity price since April 2010³, means that new investors in solar PV are able to benefit from rates of return well in excess of the 5% the current tariffs were intended to deliver. This overcompensation compromises the value for money of the FITs scheme to the energy consumers who meet its costs through their bills. If uptake continues to increase as it has been doing, the affordability of the whole FITs scheme will quickly come under threat. The review therefore proposes new tariffs for solar PV to ensure that the FITs scheme can continue to live within its prescribed budget, and an energy efficiency eligibility requirement to strengthen the links across DECC policy on domestic carbon reduction measures.

¹ Further details on how the costs of the FITs scheme are managed via the Levy Control Framework can be found on the HMT website: http://hm-treasury.gov.uk/psr_controlframework_decc.htm

² Cambridge Economic Policy Associates (CEPA)/Parsons Brinckerhoff (PB), 'Updates to the Feed in Tariffs model: Documentation of changes for solar PV consultation', October 2011

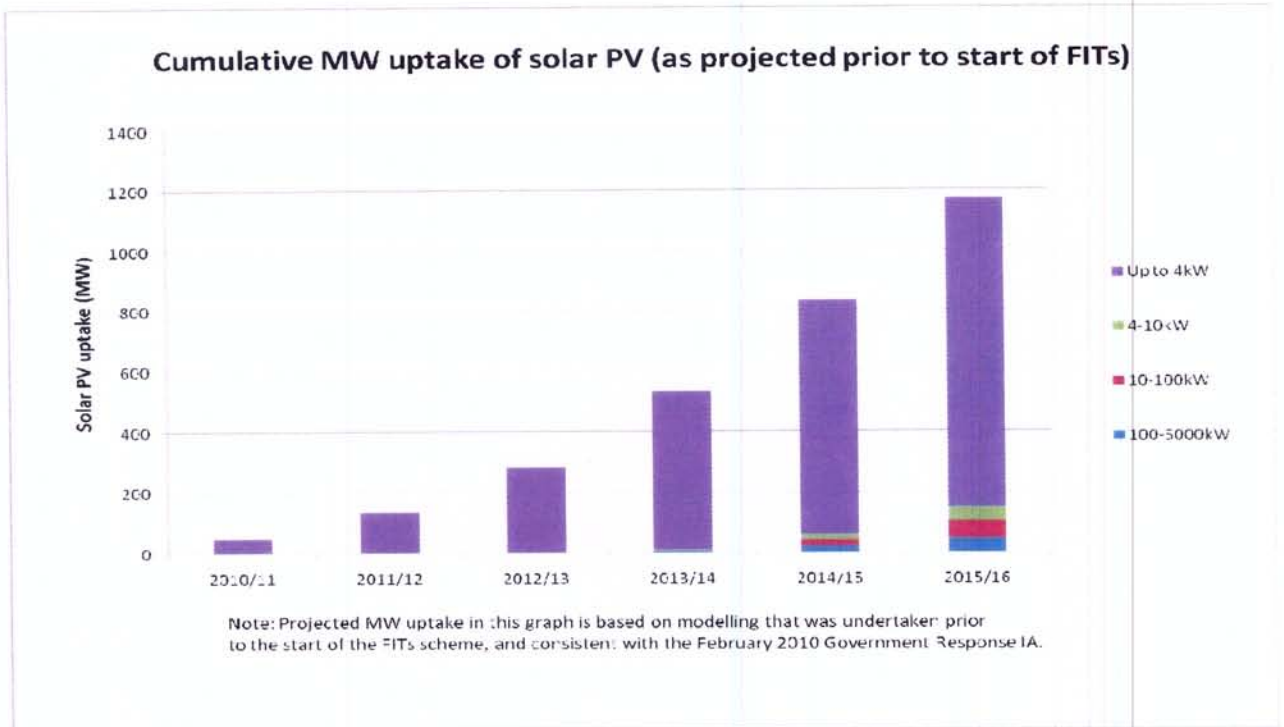
³ Source: ONS RPI data. See <http://www.ons.gov.uk/ons/index.html> for more information.

8. This Impact Assessment considers the costs and benefits associated with consultation proposals designed to address these concerns.

C. Rationale for intervention

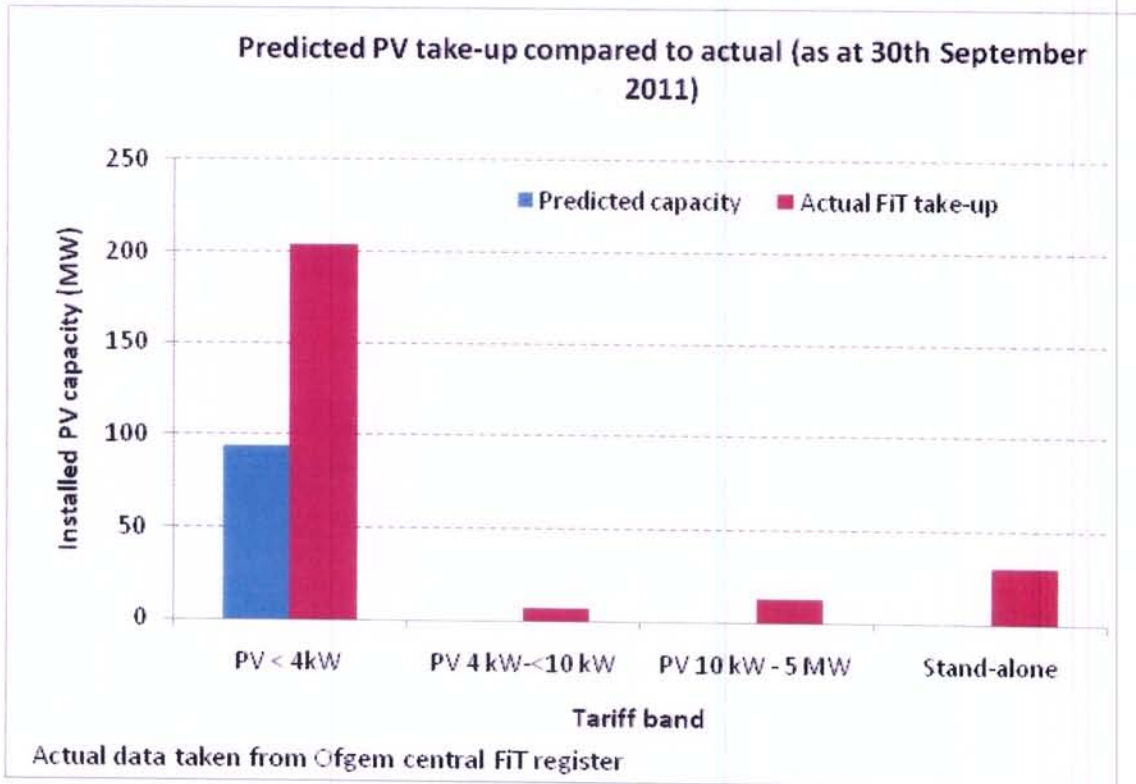
9. From its establishment in April 2010, the FITs scheme was intended to encourage deployment of additional small scale low carbon electricity generation, particularly by individuals, householders, organisations, businesses and communities who have not traditionally engaged in the electricity market. For these investors, delivering a mechanism which is easier to understand and more predictable than the Renewables Obligation, as well as delivering additional support required to incentivise smaller scale and more expensive technologies, were the main drivers behind the development of this policy.
10. In choosing the range of technologies supported by FITs, the focus was on small-scale low-carbon electricity with the primary intention of supporting the widespread deployment of proven technologies now and up to 2020, rather than to support development of unproven technologies. PV was seen as a well developed technology that could be deployed at scale in domestic, community and small business settings. While it is currently a relatively high cost technology, it has broad public acceptance, can be easily incorporated into the built environment and generally does not require expensive grid connection or reinforcement costs. PV was also seen as having the potential for significant cost reductions in the future, something that has already proved to be the case since the start of the FITs scheme.
11. The expected rates of return for the tariffs were set with all of these factors in mind. The tariffs for solar PV were set to provide an approximate 5% rate of return on capital for a well-located installation, which would be expected to provide reasonable returns to householders and small businesses who were interested in generating their own electricity, but not to provide sufficient incentive for speculative investors. The modelling undertaken prior to the start of the FITs scheme projected around 140MW of uptake (all at domestic scale) in the first two years of the scheme, as shown in the figure below:

Chart 1



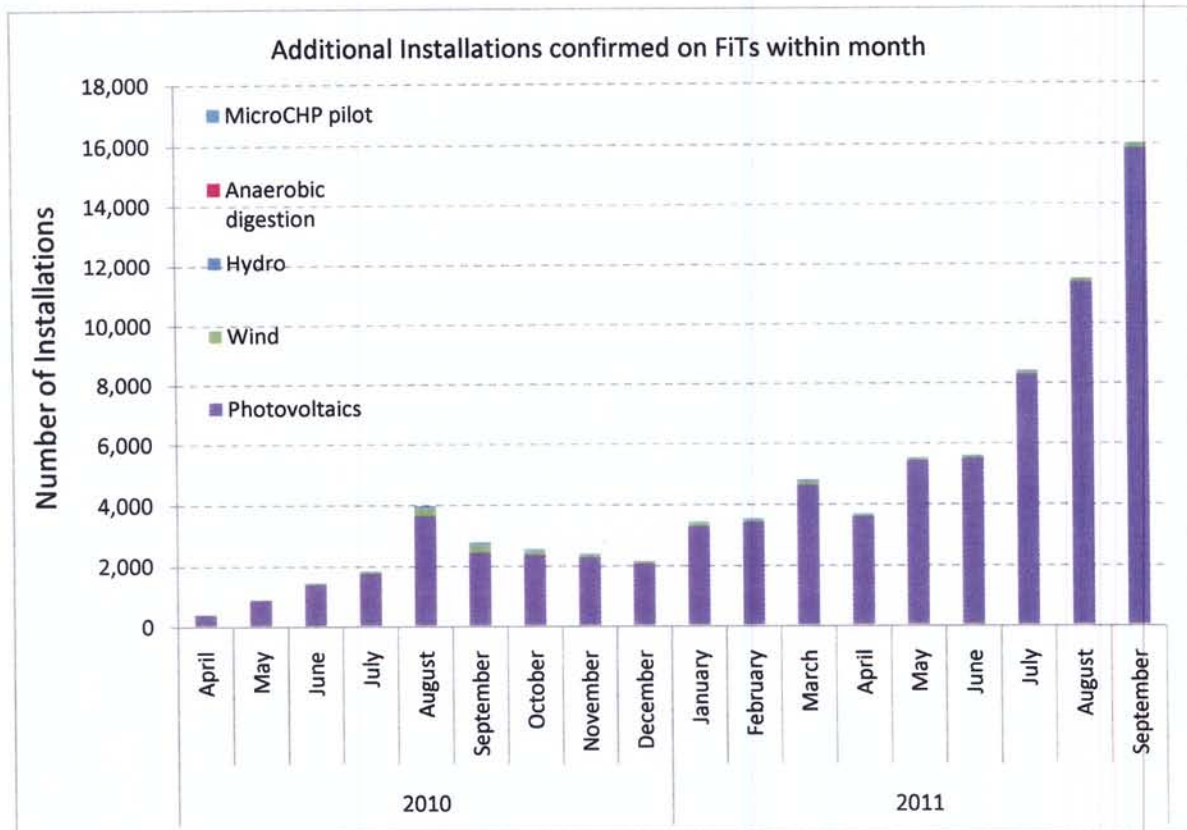
12. However, deployment of PV, particularly over summer 2011, has accelerated rapidly resulting in a level of uptake that is significantly above these projections, as shown in Chart 2 below. As of the end of September 2011 (i.e. half way through the second year of the FITs scheme), 255MW of solar PV had been registered for FITs. This compares to the 94MW that was originally projected for this point in time, and is nearly double the projection for the first two years of the scheme.

Chart 2



13. As illustrated by the graph below, the summer of 2011 (July to August) saw the monthly rate of growth in new solar PV installations more than double compared to June 2011:

Chart 3: Monthly FITs installations by technology



14. The graph above is from the central FITs register, which is administered by Ofgem⁴. Installations are only confirmed on the FIT register at the very end of the FITs application process, i.e. once an application for FITs has been approved and a FITs supplier has been identified. This creates a time lag between when a project is installed and when it features in the official statistics on FITs uptake. Given this, we have also been monitoring the pipeline of installations, in particular using data from the Microgeneration Certification Scheme (MCS) installation database⁵ on the number of FIT-eligible installations.

15. Data from the MCS database suggests that the number of <50kW solar PV installations is almost 40% higher than the number currently confirmed onto the Central FIT Register⁶. This is illustrated by the graph below.

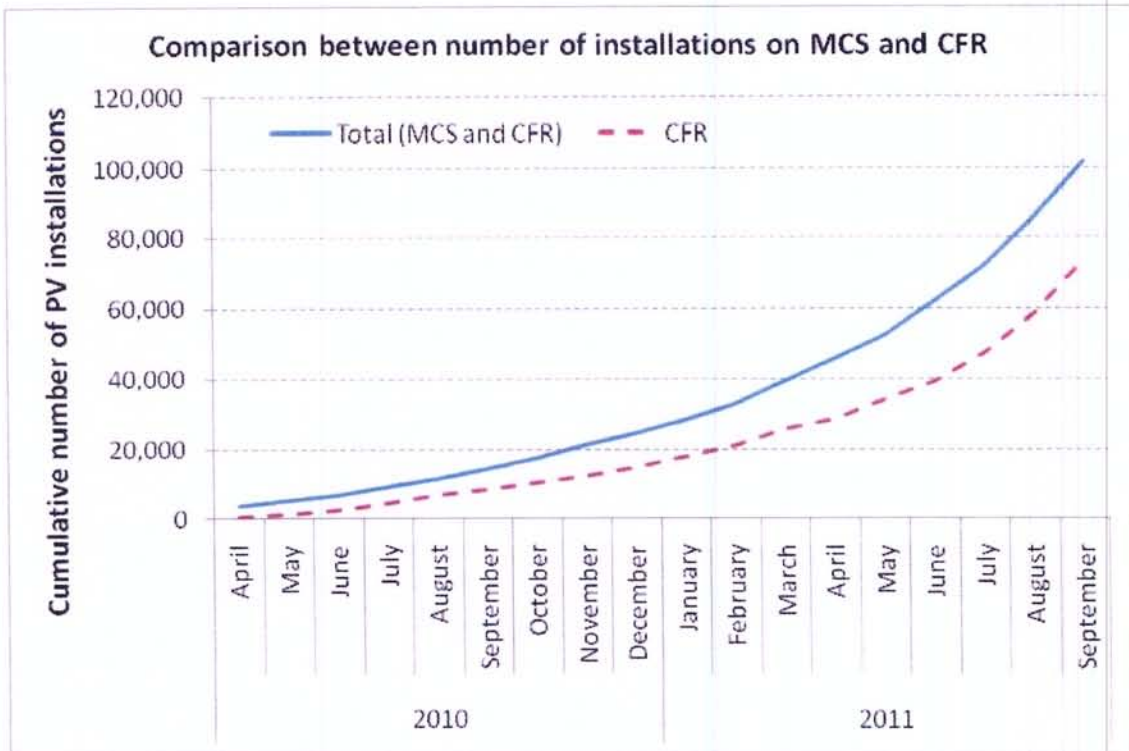
⁴ For more details, see

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=10&refer=sustainability/environment/fits>

⁵ For more details see <http://www.microgenerationcertification.org/mcs-installation-database>.

⁶ Note that around 10% of installations entered onto the MCS database one year ago are still not on the central FITs register. This might be for a number of reasons, but we believe the majority of these represent duplications for housekeeping purposes. When estimating the number of installations to date, we have therefore downrated figures from the MCS database by 10%.

Chart 4: MCS vs central FITs register (CFR) solar PV installations



16. A key factor in the recent increase in uptake has been the reduction in PV costs since the scheme began. The table below compares DECC's estimates of capital costs before the FITs scheme was launched with CEPA/PB's updated capital cost estimates (developed as part of the Comprehensive Review)

Table 3: Comparison of estimates of PV installation costs from before start of FITs scheme and now

Type of installation	Size of installation (kW)	Capital Cost of 2010 installation (2010 prices)	Capital Cost of 2011 installation (2010 prices)	% change
Building Mounted	2.6	£13,000	£9,000	-30%
	5.5	£25,000	£16,000	-35%
	20	£82,000	£54,000	-35%
	80	£327,000	£194,000	-40%
	200	£761,000	£486,000	-35%
	350	£1,332,000	£788,000	-40%
Standalone	200	£761,000	£450,000	-40%

Notes: Costs for 2010 installations taken from Element/Poyry assumptions developed for FITs modelling prior to scheme launch. For more details see 'Design of Feed in Tariffs for sub-5MW electricity in Great Britain- Quantitative Analysis for DECC' Element/Poyry, June 2009.

Costs for 2011 installations taken from Cepa/PB report updating assumptions in the FITs model for the Comprehensive Review (CEPA, Parsons Brinckerhoff, 'Updates to the Feed in Tariffs Model: Documentation of changes for solar PV consultation', October 2011)

Installation sizes are for 'representative' installations in each tariff band in the updated FITs model on which costs in that band are based⁷. These do not correspond exactly to the 'representative' installations in the previous version of the FITs model where tariff bands did not reflect the tariff bands for solar PV installations above 50kW that came into effect 1st August 2011.

Figures have been rounded.

17. These falls are driven by a combination of falling module costs worldwide and by the development of the UK market for supply and installation. These real world developments have been far ahead of any of the projections made when the FITs scheme was developed in 2009. For example, the scheme as introduced included plans for tariffs to degress after the second year of the scheme, but this planned degression was around 9% per annum from 2012/13, a good deal below the level of actual cost reductions seen.
18. Furthermore, a significant proportion (around 20%⁸) of sub-4kW installations are by 'aggregators', i.e. generators with multiple sites, including 'rent a roof' arrangements, the basic premise for which is that a third party owns generating equipment which is then hosted by a house or other building. The hosts benefit from the 'free' electricity generated by the PV panels (and associated energy bill savings) and potentially a rent payment while the aggregator benefits from the FITs income. Aggregators are able to enjoy scale economies which investors in individual installations are unable to access, for example through their ability to buy solar panels in bulk. In their report for DECC as part of the Comprehensive Review, CEPA/PB gave a midpoint estimate for aggregator capex as approximately 65%⁹ of the cost of individual installations, although they also noted the wide range in aggregator costs¹⁰.
19. On top of large falls in installation costs, there has been a 13% increase in retail electricity prices since April 2010¹¹ making the savings from avoided consumption greater. The changed fiscal environment, with record low interest rates and higher inflation, makes alternative investment options less attractive, further increasing the take up of solar PV above forecast levels. Further projected reductions in the cost of PV installations, and increases in retail electricity price over the coming year¹², have been taken into account when proposing tariff levels for 2012/13.
20. This combination of factors has meant that the returns available to new PV generators are higher than originally envisaged. The tariffs for solar PV were originally intended to provide a return of around 5% for well located installations, but our analysis suggests that the returns available now are substantially higher than that. This is not sustainable and, were the trend to continue, it would have two impacts. Firstly, it would risk PV generators being overcompensated. This would not provide value for money to consumers, who ultimately pay for FITs through their energy bills. Secondly, it would very rapidly result in the spending envelope for the FITs scheme being breached, limiting the availability of FITs to other technologies and prospective generators.

⁷ See CEPA, PB, 'Updates to the Feed in Tariffs model: Documentation of changes for solar PV consultation', October 2011

⁸ Ofgem data. Aggregators defined here as generators who receive FITs income from more than 1 installation.

⁹ See CEPA, PB, *ibid*.

¹⁰ For more information, see CEPA/PB, *ibid*.

¹¹ Source: ONS RPI statistics. For more information see <http://www.ons.gov.uk/ons/index.html>

¹² Source, DECC, Analytical Projections,

http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/analytic_projs.aspx

C. Objectives

21. The primary objective for the review of PV tariffs is to ensure that DECC is able to stay within the spending review envelope for FITs spend, thus avoiding overcompensation of investors and improving value for money for consumers. This will also reduce the risk of PV consuming nearly the entire FITs budget, and crowding out the other technologies that are supported under FITs. The review also aims to strengthen the link between FITs and energy efficiency by introducing a new energy efficiency requirement for new solar PV installations that are attached to or wired to provide electricity to a building.

D. Options under consideration

22. Our analysis considers a 'Do Nothing' scenario, representing business-as-usual (i.e. no solar PV review) where current tariffs for new installations are degressed at around 9% p.a. from April 2012 as originally intended, and no other changes are made.

23. The other options, 'Low Tariffs Early' and 'Low Tariffs April' introduce new tariffs for solar PV, with eligibility dates for the new tariffs varying between the options. The tariffs are degressed to maintain an approximate 5% rate of return going forward (4.5% for installations up to 4kW). While the tariff reviews will monitor and assess the appropriateness of these rates of return, this assessment assumes the rates remain constant. The options include new tariffs for PV aggregators, which are set at 80% of the tariff for an individual installation in each tariff band. We consider that this represents a cautious approach in light of uncertainties around aggregator costs¹³. They also introduce an energy efficiency requirement for installations attached to or wired to provide electricity to a building. The scenarios are set out below.

24. It should be noted that this Impact Assessment does not make any assumptions on what changes may be made to the scheme as a result of Phase 2 of the Comprehensive FITs review, i.e. only costs and benefits in relation to the solar PV review are assessed.

Option 1: Do Nothing

25. The Do Nothing scenario involves leaving solar PV generation tariffs for existing bands unchanged, with degression of current tariffs for new installations at a rate of around 9.0% per annum from April 2012 as planned, with no other changes to eligibility or tariff bands. Table 1 below sets out current solar PV generation tariffs:

¹³ For more details, see CEPA/PB, *ibid.*

Table 4: Current Tariff Structure for solar PV

Band (kW)	Current generation tariff (p/kWh)
≤4kW (new build)	37.8
≤4kW (retrofit)	43.3
>4-10kW	37.8
>10-50kW	32.9
>50-100kW	19
>100-150kW	19
>150-250kW	15
>250kW-5MW	8.5
stand alone	8.5

Note: Tariffs are for 2011/12 and are expressed in 2011/12 prices (as also published by Ofgem; please see: <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=16&refer=Sustainability/Environment/fits>). Installations also receive a 3.1p/kWh export tariff (in 2011-12 prices; export tariff will be uplifted for inflation in 2012-13) for any electricity exported back to the grid. Tariffs are assumed to degress at 8.5% per annum from 2012/13 till 2014/15 and then degress at 9% per annum from 2015/16 till 2020/21.

26. The costs and benefits of the Do Nothing Option are set out in section E below.

Option 2: 'Lower tariffs early': tariffs target a 4.5-5.0% return on capital for investors from April 2012 (for installations with an eligibility date on or after 12 December 2011), energy efficiency requirement, new tariffs for aggregators

27. The solar PV consultation has three proposals intended to (a) address the budgetary risks around higher than anticipated solar PV uptake, as well as the risk of overcompensation of investors and lack of value for money for consumers, and (b) strengthen the link between FITs and energy efficiency.

28. Firstly, the review proposes introducing new tariffs for new solar PV installations. The principal focus of the proposed tariffs is on addressing the significant risk of overcompensation posed by the current tariffs for PV installations with a total installed capacity of 50kW or less. However, in order to provide consistency and in light of new evidence from the comprehensive review on costs, it also proposes to adjust tariffs for new installations with an installed capacity of 50kW to 250kW. The proposed new tariffs are set out in the table below:

Table 5: Current solar PV tariff levels and proposed tariffs for 2012-13 under solar PV review proposals

Band (kW)	Current generation tariff (p/kWh)	Proposed generation tariff (p/kWh)
≤4kW (new build)	37.8	21.0
≤4kW (retrofit)	43.3	21.0
>4-10kW	37.8	16.8
>10-50kW	32.9	15.2
>50-100kW	19	12.9
>100-150kW	19	12.9
>150-250kW	15	12.9
>250kW-5MW	8.5	8.5*
stand alone	8.5	8.5*

* These are current tariffs and will be uplifted by RPI inflation for 2012-13.

Note: Tariffs are in nominal terms, apart from the unchanged tariffs for 250kW-5MW and stand alone installations, which are expressed in 2011-12 prices, and will be uplifted by RPI inflation for 2012-13. Installations also receive a 3.1p/kWh export tariff for any electricity exported back to the grid (in 2011/12 prices, equivalent to the 3p export tariff in 2010/11).

It is assumed that these tariffs are degressed from 2013-14 in order to continue to deliver rates of return of approximately 4.5% for installations up to 4kW and 5% for larger installations) in line with anticipated falling future costs.

29. The proposed tariffs have been set in light of evidence of the falling costs of PV and are intended to provide an approximate 5% real¹⁴ rate of return for well located installations. This was the target return for FITs when the scheme started.¹⁵ The one exception is the tariff for installations up to 4kW, the scale most commonly used for domestic PV installations. The proposed tariff for this band is intended to deliver an approximate 4.5% rate of return for a well located domestic PV installation. The proposed tariffs for new build and retrofit installations are the same, since the rapid growth of the retrofit sector has reduced costs rapidly, bringing them into line with costs for new build installations¹⁶. Based on analysis undertaken through the comprehensive review, we consider that a lower than 5% (real, post-tax, if applicable) return is more appropriate for domestic PV. Evidence from CEPA¹⁷ suggested that 1 to 4% could reflect an appropriate range of required rates of return for domestic PV, given the current investment climate and the alternative investment opportunities currently available to individuals. The rate of return suggested here is slightly outside this range, but lower than under the original scheme. Costs, rates of return and uptake will be continually reviewed.
30. As mentioned in paragraph 2 above, the FITs scheme is also intended to contribute to other low carbon goals. These wider aims are central considerations in justifying any level of subsidy that is above the cost per unit of energy generated considered necessary to meet the renewable energy target cost-effectively.
31. Because of the urgency of budgetary concerns, it is proposed that the new tariffs will come into force on 1 April 2012, but will apply from that date to all new installations with an eligibility date on or after 12 December 2011. This means that installations with an eligibility date between 12 December 2011 and 1 April 2012 will receive the current tariff for that period only, before moving on to the new tariff from 1 April 2012.
32. Secondly, it proposes to introduce new tariffs for aggregated PV installations set at 80% of the tariff level for individual installations in the relevant band, to come into force from 1 April 2012. The aggregated tariff is intended to take account of the economies of scale experienced by installers of aggregated PV schemes.
33. Thirdly, it proposes to make eligibility for the new tariffs above conditional on meeting an energy efficiency requirement for all PV installations (attached to or wired to provide electricity to a building) with an eligibility date on or after 1 April 2012. If the FIT generator cannot demonstrate that the building meets a certain level of energy efficiency, the installation will be eligible for a lower tariff of 9p/kWh for the whole of

¹⁴ A real rate of return is one that takes account of inflation.

¹⁵ The Impact Assessment supporting the introduction of the FITs scheme (published in February 2010) stated that, "PV tariff levels provide an approx 5% ROI given that PV is easier to deploy than other technologies and carries less risk to the investor since it is a tried and tested technology. In setting a 5% ROI for PV, the relatively high generation cost of PV (measured through a £/MWh cost-effectiveness metric) and the potential impact of this on overall scheme costs and hence energy bills has also been taken into account."

¹⁶ CEPA/PB, *ibid.*

¹⁷ Please see Ccpa/PB *ibid.*

the tariff lifetime. This 9p/kWh level is broadly equivalent to two Renewables Obligation Certificates (based on 2012-13 costs). This is the level of support available under the Renewables Obligation to offshore wind, which is currently considered to be the marginal technology required to deliver the UK's 15% renewable target cost effectively. The 9p/kWh rate is also comparable with the current tariff for all stand-alone and >250kW solar PV projects (of 8.5p/kWh in 2011/12), noting that these, like all other current tariffs, will be adjusted in line with the Retail Price Index from 1 April 2012.

34. As a transitional provision, generators with PV installations with an eligibility date between 1 April 2012 and 31 March 2013, will have 12 months from the eligibility date to install the necessary energy efficiency measures. During this period, installations would receive the applicable standard tariff, but if measures have not been installed within 12 months, the tariff would automatically be reduced to the lower rate of 9p/kWh.
35. There are two proposals for the level of energy efficiency required to receive the new tariffs. The first option would require the property to be brought up to an Energy Performance Certificate (EPC) rating of level C or above. Setting the requirement at EPC level C or above would mean that around 90% of houses would have to take action on energy efficiency before they would be eligible for the standard tariff.
36. The second proposal is to make the energy efficiency standard relative rather than absolute, by linking it explicitly to the Green Deal and, possibly, the Energy Company Obligation (ECO). Eligibility of an installation for the standard tariffs would be made conditional on the carrying out of all measures to the building that are identified on the EPC as likely to be eligible for Green Deal financing or, going further, also any measures that can be funded through the ECO, which should help drive demand for solid wall insulation.
37. This Impact Assessment only considers the costs of electricity generated under the FITs scheme. The additional costs of meeting the energy efficiency requirement e.g. cost of obtaining an EPC certificate are not considered here. In addition, we do not quantify the benefits of any reduction in the variable administration costs of the FITs scheme linked to a change in solar PV uptake, or the benefits to households of reduced electricity bills and carbon savings through the installation of energy efficiency measures.
38. The costs and benefits of 'Lower tariffs Early' are set out in section E below.

Option 3: 'Lower tariffs April': tariffs target a 4.5-5.0% rate of return for investors from April 2012, energy efficiency requirement, new tariffs for aggregators

39. The only difference between Options 2 and 3 is the date on or after which new installations become eligible for the new tariffs. In Option 3, new installations on or after 1 April 2012 are eligible for the new tariffs, as opposed to 12 December in Option 2.
40. The costs and benefits of 'Lower Tariffs April' are set out in Section E below.

E. Monetised Costs and benefits

OPTION 1 - Do nothing

Methodology

41. FITs uptake in year 2 of the scheme- and uptake of solar PV in particular- has been higher than predicted by our latest economic market modelling (carried out through DECC's FITs model), even after recent reductions in PV costs have been taken into account. We believe the reason the model fails to predict current levels of PV uptake is a rush to install PV in anticipation of tariff reductions in light of the announcement of the Comprehensive Review.
42. Our approach to estimating FITs uptake under our Do Nothing and other scenarios therefore involves combining actual uptake data from the Central FITs Register and the MCS installation database with the projections of the DECC FITs model. The pattern of growth in PV uptake observed so far from the Central FITs register and the MCS database is extrapolated out until 31 March 2012 to give an estimate of PV uptake for the first two years of the FITs scheme. We then apply the annual rates of growth for solar PV uptake from April 2012 onwards which are projected by the DECC FITs model under current tariffs to cumulative uptake to March 31st 2012 to give estimates of uptake for future years of the FITs scheme in the central scenario. Because there are considerable uncertainties around projected uptake, we have constructed sensitivities around this central scenario. The impact of 'Low' and 'High' sensitivities with altered assumptions around the growth of FITs uptake are set out in Table 12 below:

Table 6: Cumulative projected PV uptake (GWh) under current tariffs (central scenario)

Financial Year	2011-12	2012-13	2013-14	2014-15	2020-21
Solar PV uptake, all bands	290	970	1,650	2,480	12,300

Notes

- 1: Figures in the table are rounded.
- 2: Figures include uptake for Year 1 of FITs scheme (2010-11)
- 3: Installations from before the start of the FITs scheme which have transferred onto FITs not included
- 4: This Impact Assessment only considers higher uptake of solar PV. Uptake of other FITs-eligible technologies will be considered as part of the second phase of the comprehensive review.
- 5: installations assumed to generate less than their full annual output in their first year of generation

Estimated costs and benefits

43. Estimates of the costs and benefits of solar PV uptake under the 'Do-Nothing' option, based on the uptake assumptions above, are provided in Table 7 below.

Table 7: Costs and benefits of Solar PV under current tariffs

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Costs to Consumers	110	360	570	790	2,140	42,000
Resource costs	60	160	240	310	710	14,200
Value of Carbon Benefits	0	5	10	15	105	2,300
NPV	- 60	-150	- 230	- 300	- 610	- 11,900

Notes

- 1: Figures in the table are rounded
- 2: Costs include those for 2010-11 installations
- 3: New installations are assumed to generate less than their estimated full year output in their first year
- 4: FITs model costs are presented in net terms i.e. net of the value of electricity exported back to the grid. Subsidy costs are equivalent to the ONS definition of tax and spend.
- 5: NPV = Value of Carbon Benefits – Resource Costs. Values in tables do not always exactly correspond due to rounding.

OPTION 2: Lower tariffs early

Methodology

Lower tariffs with 12 December eligibility date

44. As under the 'Do Nothing' scenario, deployment and cost projections for this option use historic data on solar PV installations to date from the Ofgem and MCS registers. The projection for uptake until 31 March 2012 in the 'No Change' scenario is then altered to account for:

A) A 'rush' by investors to install before 12 December eligibility date in order to receive current tariffs. We have assumed that pre-12 December uptake will be 20% higher than in the 'Do Nothing' scenario

B) Reduced uptake after 12 December 2011 until 1 April 2012 to account for the fact that installations between these dates will only receive current tariffs for a maximum of 4 months, while for the rest of the 25-year lifetime of the tariff they will receive the new, reduced tariff. Their rates of return will therefore be equivalent to those of similar installations with an eligibility date after 1 April (all other things being equal). The reduction in uptake was estimated by comparing solar PV uptake for 2012-13 from the FITs model under (a) current tariffs and (b) proposed tariffs. Sub-4kW uptake is projected to be 70% lower under the proposed new tariffs, while uptake for 4-50kW installations is 95% lower. On this

basis, we therefore assume that the new tariffs reduce demand by 70% for sub-4kW installations and by 95% for 4-50kW installations.

45. Uptake from April 2012 onwards is estimated in a similar manner as under the 'Do Nothing' scenario - combining projected uptake until April 2012 with future growth rates in solar PV uptake from April 2012 onwards projected by the FITs model under the proposed new tariffs. Multi-installation ('aggregator') tariffs have only been modelled for the sub-4kW and 4-10kW tariff bands¹⁸. Table 8 demonstrates that under these assumptions the reduced tariffs have a significant effect on PV uptake:

Table 8: Cumulative PV (Gwh) uptake under proposed new tariffs (eligibility date 12 December)

Financial Year	2011-12	2012-13	2013-14	2014-15	2020-21
Solar PV uptake, all bands (GWh) central scenario	270	620	740	890	2,100

See notes accompanying Table 6

Energy Efficiency requirement

46. In order to estimate the impact of an energy efficiency requirement, we have estimated the proportion of new installations that would be affected by each of the proposed energy efficiency requirements. This gives a range of potential costs and impacts.
47. The requirement that homes need to achieve EPC level C in order to benefit from the 21p/kWh tariff is assumed to have a significant impact on uptake. We estimate that around 9% of houses (excluding flats) currently meet EPC level C or above¹⁹, and that an additional 1.5% per year of the housing stock will reach level C each year as households take up Green Deal measures. We have applied this increasing proportion to additional uptake from April 2012 onwards, ie 9% of estimated uptake in 2012-13 under the new tariffs would occur with the level C requirement, 10.5% in 2013-14 etc- this is the low range estimate of uptake with an energy efficiency requirement. For this low end of the range we assume all installations receive the higher FITs tariff, ie there is no uptake by investors who do not meet the level C requirement and receive the 9p/kWh tariff. We estimate that for a typical house, reaching level C could require an investment of up to £5,600 in energy efficiency measures- these costs are not included in this Impact Assessment.
48. The requirement to take up all measures financeable under the Green Deal is less stringent, as the Green Deal will provide the upfront funding for the measures. We

¹⁸ Although there is evidence that multi-installation strategies are being considered for projects above 10kW, we expect that uptake will be much lower than for smaller projects, as business/ industrial owners of larger buildings are more likely to be able to pay for their own installations, and would be less inclined to let a third party take tariff payments.

¹⁹ Assumption derived from English Housing Survey 2009, see <http://www.communities.gov.uk/publications/corporate/statistics/ehs2009stocksummary>

have assumed that this condition will not significantly reduce the number of households taking up FITs²⁰ although it may lead to a delay in installation for some. Given uncertainty about the extent of any delays in installation, and the small impact this will have on the cost of the FITs scheme over time, we therefore adopt a cautious approach and assume that uptake under the Green Deal requirement is the same as uptake under the new tariffs in the absence of any energy efficiency requirement. This provides the high end estimate of uptake with an energy efficiency requirement.

Table 9: Cumulative PV GWh uptake under proposed new tariffs (12 December eligibility date) and energy efficiency requirement

Financial Year	2011-12	2012-13	2013-14	2014-15	2020-21
Solar PV uptake, all bands (GWh) central scenario	270	560 - 620	570 – 740	590 – 890	800-2,100

See notes accompanying Table 6. Low end of range represented by EPC level C eligibility requirement, upper end of range represented by Green Deal eligibility requirement (assumed to be equivalent to no eligibility requirement in terms of effect on solar PV uptake)

49. Table 9 shows that a EPC level C requirement has a very significant impact on uptake relative to a Green Deal-linked requirement.

Estimated costs and benefits

Lower tariffs with 12 December eligibility date

50. Estimates of the costs and benefits of solar PV uptake under proposed new tariffs without an energy efficiency requirement are shown in table 10 below for the central case. As with uptake, costs are considerably lower than under the Do Nothing option:

Table 10: Costs and benefits of lower tariffs with 12 Dec eligibility date, no energy efficiency requirement, central case

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Costs to Consumers	110	210	220	230	260	5,500
Resource costs	50	100	120	130	170	3,500
Value of Carbon Benefits	0	5	5	5	20	400
NPV	- 50	-100	-110	-120	-150	-3,100

²⁰ Although the Green Deal does not start until October 2012, installations with an eligibility date between 1 April 2012 and 31 March 2013 will have 12 months from the eligibility date to install measures before becoming ineligible for the higher tariff. We assume that no investors drop out because they believe that they will be unable to take up Green Deal measures within this 12 month period.

See notes accompanying Table 7.

Lower tariffs with 12 December eligibility date plus energy efficiency requirement

51. Estimates of the costs and benefits of solar PV uptake under proposed new tariffs, together with an energy efficiency requirement, are shown in Table 11 below. These show that the EPC level C energy efficiency requirement does not have as substantial an impact on scheme costs as it does on uptake. This is partly because a large proportion of solar PV costs both with and without an energy efficiency requirement are due to uptake before April 2012 which will continue to receive current, high tariffs—these costs will be carried forward regardless of the energy efficiency measure, This will limit the savings possible from the combination of future lower tariffs and reduced uptake.

52. As with uptake, we present a range of solar PV costs under an energy efficiency requirement. The low end of the range is represented by PV costs under an EPC level C eligibility requirement, while the high end is for a Green Deal-related requirement:

Table 11: Costs and benefits of lower tariffs with 12 December eligibility date plus energy efficiency requirement

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Costs to Consumers	110	200 – 210	200 – 220	200 – 230	210 – 260	4,400 – 5,500
Resource costs	50	100	100 – 120	110 – 130	110 – 170	2,400 – 3,500
Value of Carbon Benefits	0	5	5	5	5 – 20	200 – 400
NPV	-50	-100	-100 to -110	-100 to -120	-110 to -150	-2,200 to -3,100

See notes accompanying Table 7

OPTION 3: Lower Tariffs with 1 April eligibility date

Methodology

53. We assume that under this option uptake until March 31 2012 is the same as for Option 1, as tariff changes only take effect from 1 April 2012. Uptake from April 2012 onwards is estimated the same way as for Option 2, i.e. the annual rate of growth in solar PV uptake from April 2012 onwards from the DECC FITs model is applied to projected uptake until 31 March 2012. This leads to increased costs over and above Option 2, since more people will be able to claim FITs at the current rate, but lower costs than Option 1. Assumptions around the two proposed energy efficiency requirements are the same as under option 2.

54. Tables 12 and 13 below show uptake under the new tariffs, both with and without an energy efficiency requirement:

Table 12: Cumulative PV uptake (GWh) under proposed new tariffs (1 April eligibility date), no energy efficiency requirement

Financial Year	2011-12	2012-13	2013-14	2014-15	2020-21
Solar PV uptake, all bands (GWh)	290	740	890	1,060	2,500

Table 13: Cumulative PV uptake (GWh) under proposed new tariffs (1 April eligibility date) plus energy efficiency requirement

Financial Year	2011-12	2012-13	2013-14	2014-15	2020-21
Solar PV uptake, all bands (GWh)	290	680-740	690-890	710-1,060	1,000-2,500

See notes accompanying Table 6. Lower bound represents uptake under EPC level C eligibility requirement, higher bound is uptake under Green Deal-related requirement and is equivalent to no energy efficiency requirement

55. Option 3 also reduces uptake significantly compared to 'Do Nothing', but not by as much as option 2.

Estimated costs and benefits

Lower tariffs with 1 April eligibility date, no energy efficiency requirement

56. Estimates of the costs and benefits of solar PV uptake under the new tariffs and eligibility date as proposed under Option 3 without an energy efficiency requirement are provided in Table 14 below. Costs are higher than for Option 2 as a result of additional uptake at current tariffs between 12 December 2011 and 31 March 2012.

Table 14: Costs and benefits of Solar PV under lower tariffs with 1 April eligibility date, no energy efficiency requirement

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Costs to Consumers	110	270	280	290	340	7,100
Resource costs	60	130	140	150	200	4,200
Value of Carbon Benefits	0	5	5	5	20	480
NPV	-60	-120	-130	-140	-180	-3,700

See notes accompanying Table 7.

Lower tariffs with 1 April eligibility, plus energy efficiency requirement

57. Estimates of the costs and benefits of solar PV uptake under the new tariffs/ eligibility date as proposed under Option 3 together with an energy efficiency requirement are provided in Table 15 below. As with Option 2, the level C energy efficiency requirement only brings about a small reduction in scheme costs (additional to that achieved by the tariff reduction) relative to its impact on uptake.

Table 15: Costs and benefits of Solar PV under lower tariffs with 1 April eligibility date, plus energy efficiency requirement

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Costs to Consumers	110	260 - 270	260 - 280	260 - 290	270 - 340	5,700 – 7,100
Resource costs	60	120 - 130	130 - 140	130 - 150	140 - 200	2,900 – 4,200
Value of Carbon Benefits	0	5	5	5	10 - 20	200 - 480
NPV	-60	-120	-120 to -130	-120 to -140	-130 to -180	-2,700 to -3,700

See notes accompanying Table 7. High end of range is for Green Deal eligibility requirement, low end is for EPC level C requirement

Further costs and benefit considerations for solar PV

58. In view of the high potential cost impact of solar PV and the associated risk that this could absorb a high proportion of funding from the FITs scheme as a whole, it is important to consider whether there are wider policy justifications for including support for these installations in the FITs scheme. The FITs scheme is designed to promote take up of small-scale low-carbon electricity technologies by the public and communities as part of a portfolio approach to meeting the UK's renewable energy target that must be affordable in the context of the control framework for DECC levy-funded spending and provide value for money to consumers.

59. The FITs scheme is also intended to contribute to other low carbon goals. These wider aims are central considerations in justifying any level of subsidy that is above the cost per unit of energy generated considered necessary to meet the renewable energy target cost-effectively. Specifically, the FITs scheme aims to:

- a) Use decentralised energy to empower people and give them a direct stake in the transition to a low-carbon economy;

- b) Help develop a supply chain that offers households a wide range of cost effective measures to lower their energy use and carbon emissions;
 - c) Assist in public take-up of carbon reduction measures, particularly measures to improve the energy efficiency of buildings
60. In relation to a), engagement with energy generation could lead to behaviour change by individuals and communities in relation to energy use which will further reduce carbon emissions in addition to the reductions brought about by installing solar PV.
61. In respect of b), the proposed tariffs are intended to provide a rate of return of approximately 4.5-5%, in line with what was intended at the launch of the FITs scheme. By allowing future solar PV uptake at an affordable level, while still providing attractive rates of return in the current investment climate, FITs will ensure that businesses installing domestic solar PV remain viable at a time when there is spare capacity in the economy which cannot readily be redeployed. These firms will then have the opportunity to position themselves to install some of the energy efficiency measures under the Green Deal/ECO once this policy has been fully introduced (it is currently expected to launch in Autumn 2012). Indeed, some firms have indicated their interest to bundle together these measures into a single offer to consumers.
62. In relation to c), making the higher FITs tariff conditional on an energy efficiency requirement could incentivise households to take up energy efficiency measures sooner than they would otherwise have done so, which will lead to greater levels of cost-effective emissions reductions.

Risks and Assumptions

63. There are a number of assumptions that have been used that underpin the analysis: PV costs (based on estimates of PV costs from CEPA/Parsons Brinkerhoff²¹) – have moved rapidly to date, and hence future costs are uncertain. The model uses DECC projections for energy prices²²
64. PV uptake from October 2011 to April 2012 has been estimated through extrapolating observed PV growth rates throughout the year so far. However, it is not certain that future growth in PV uptake will reflect past growth.
65. PV uptake post April 2012 has used the FITs model, projections from which are based on PV costs and market growth assumptions from CEPA/Parsons Brinkerhoff²³. It is assumed that growth this year is at a peak, and is influenced by the announcement of a comprehensive review of tariffs in April. Using modelled market growth rates post April 2012 reflect our assumption that growth will slow post review.
66. There is considerable uncertainty is surrounding future PV uptake, and in Table 16 below we present a range of costs based on low and high estimates of PV uptake (this could be as a result of costs falling more or less rapidly than we anticipate, or the

²¹ CEPA/PB, *ibid*

²² Updated October 2011, see

http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/ff_prices/ff_prices.aspx

²³ CEPA/PB, *ibid*.

market developing more slowly / rapidly) . The low estimate is based on a lower growth rate between October 2011 and April 2012, but with market growth rates from the DECC FITs model post April 2012. It also assumes a EPC level C-based energy efficiency requirement. The high scenario assumes that current high growth rates continue for another year post April 2012, with modelled market growth rates from April 2013, and assumes a Green Deal-based energy efficiency requirement.

Table 16: Range of Impacts of Options 1 to 3

Financial Year (£m, 2011 prices, discounted to 2011)	2011-12	2012-13	2013-14	2014-15	2020-21	Lifetime
Option 1 Range of Costs (no change)						
Costs to Consumers	100 - 120	280 - 620	440 – 1,230	610– 1,700	1660 – 4,590	32,500 – 90,000
NPV	-50 to -60	- 120 to - 250	- 180 to - 400	- 230 to - 460	- 480 to - 740	- 9,400 to -14,600
Option 2 Range of Costs						
Costs to Consumers	100 - 110	-180 - 310	180 - 340	-180 - 350	-190 - 410	4,100 – 8,900
NPV	- 40 to - 50	-90 to- 130	- 90 to -160	- 90 to - 180	- 100 to - 200	- 2,100 to - 4,300
Option 3 Range of Costs						
Costs to Consumers	-100 - 120	-200 - 380	-200 - 510	-200 - 530	-210 - 620	4,500 – 13,400
NPV	-50 to -60	-100 to - 160	- 100 to - 190	-100 to - 190	-100 to - 220	- 2,300 to - 4,500

Wider Impacts

Equality

This policy has no significant bearing on protected characteristics, such as age, gender reassignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation.

Environmental Impacts

67. Options 2 and 3 will result in a 5 – 15 MtCO₂ reduction in emissions within the UK power sector²⁴, but these will be offset by increased emissions elsewhere in the capped EUETS traded emissions sector. It is therefore estimated that there will be no net impact on Global GHG emissions.

²⁴ Low end of the range is with level C Energy Efficiency requirement, high end is with Green Deal-related requirement. Figures are rounded.

Wider Environmental Impacts

68. The Feed in Tariff provides the support scheme for small-scale renewable electricity generation. Alongside the Renewables Obligation it incentivises investment in renewables projects which help to move the UK away from fossil fuel dependency towards a low carbon economy with consequential carbon savings from displaced fossil fuel generation.
69. Linking the Feed in tariff for solar PV with an energy efficiency commitment could encourage households to take up more energy efficiency measures, with associated carbon savings. The estimates of overall impact in this assessment do not take account of any increase in uptake, as this is too uncertain.

Social Impacts – only relevant impact here is rural proofing

70. The main impact of this measure is on domestic PV and is not therefore disproportionately in rural areas.

Sustainable Development

71. The Feed in Tariff is aimed at increasing the deployment of small-scale renewable electricity generation in order to move the UK away from fossil fuel dependency towards a low carbon economy in preparation for a future when supplies of gas and oil will become tighter and more expensive. It will therefore have a positive impact on sustainable development.

Distributional Impacts

72. Changing the level of the feed in tariff, and its eligibility criteria will affect the overall subsidy levels needed to support generation, and hence the cost of that support to consumers through the electricity bill. Table 17 below gives the estimate of the impact on domestic electricity bills of the cost of solar PV Feed-in Tariffs. The table shows that under the no change option, the cost to domestic bills of solar PV would have been around £12 p.a. in 2015, and £26 p.a. in 2020 (2010 prices, undiscounted). The change to tariffs will reduce this cost by around £9 in 2015 and by £23pa in 2020.

Table 17: Estimated Impact on Domestic Bills

Impact on average domestic bill (£/year), 2010£ undiscounted	Do Nothing	Option 2 without Efficiency requirement	Option 2 with efficiency requirement	Option 3 without energy efficiency requirement	Option 3 with energy efficiency requirement
2011	1.40	1.40	1.40	1.40	1.40
2012	3.90	2.30	2.30	2.90	2.90
2013	6.70	2.70	2.60 to 2.70	3.50	3.30 to 3.50
2014	9.30	2.80	2.60 to 2.80	3.70	3.30 to 3.70
2015	11.90	2.90	2.50 to 2.90	3.70	3.30 to 3.70
2016	14.70	3.00	2.50 to 3.00	3.80	3.30 to 3.80
2017	17.50	3.00	2.50 to 3.00	3.90	3.30 to 3.90
2018	20.30	3.10	2.60 to 3.10	4.00	3.30 to 4.00
2019	23.20	3.20	2.60 to 3.20	4.10	3.30 to 4.10
2020	25.80	3.20	2.60 to 3.20	4.20	3.30 to 4.20

Note: upper end of range for options with energy efficiency requirement is for Green Deal-linked measure. Lower end is for EPC Level C requirement.

Economic Impact

73. The Feed in Tariffs scheme has created business and job opportunities in green sectors of the economy. Estimates of the scale of this impact in the future are uncertain because they depend on factors such as how many installations will come forward, installation times and how many associated supply chain jobs are created. Our rough estimates based on installations scenarios suggest that there could be around 1,000 to 10,000 gross additional jobs (Full Time Equivalent) in this sector in the three years to 2014/15 from Option 2 presented above. The proposed new tariff levels will also significantly improve value for money for consumers by reducing average subsidy cost per job. These estimates relate to jobs within the PV sector, rather than the overall economy-wide employment level. There will also be positive impact from lower electricity bills feeding through to the rest of the economy.

Micro business exemption

74. Since FITs does not count as regulation, the micro-business exemption does not apply.

Summary of impacts - Results

75. Table 14: below provides a summary of the costs and benefits under Options 1, 2 and 3:

Table 18: Summary Costs and Benefits

	Option 1 – no change			Option 2 – Low tariffs early			Option 3 – Low tariffs April		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
Costs	17,400	14,200	11,200	4,900	2,900	2,300	5,100	3,500	2,500
Benefits	2,800	2,300	1,800	600	300	200	600	300	200
NPV	-14,600	-11,900	-9,400	-4,300	-2,700	-2,100	-4,500	-3,200	-2,300

76. The range of costs and benefits is quite large, reflecting both the range of assumptions as to PV growth, and the range of impact of the energy efficiency measures:

- i. The high range is the high PV growth, and the 'green deal' energy efficiency requirement
- ii. The low range reflects low PV growth assumptions, and the level C energy efficiency requirement.
- iii. The medium estimate is the central growth, and the mid range of the energy efficiency costs.

77. Under central assumptions the lead option (option 2) has an NPV £9bn higher than the no change option.

Summary and recommended Option

78. The preferred option is '**Low tariffs early**' (**Option 2**), which is to reduce tariffs for solar PV from 12 December 2011. The tariff for solar PV is currently set at a rate which delivers high rates of return – above those envisaged at the start of the scheme. Reducing tariffs from 12 December will increase the benefit to the economy relative to the Do Nothing option and the reduced tariffs from 1 April option, and will reduce costs to consumers over the spending review period, thereby ensuring that DECC is able to reduce FITs costs to consumers by 10% as required in 2014-15. For reference, we estimate that the costs to consumers (nominal, undiscounted) of Option 2 will be £320-350m in 2014-15 under our central scenario²⁵ versus a FITs budget of £357m (see Table 2 above), whereas for Option 3 the estimated range is £390-430m.
79. The change to tariffs needs to be combined with an energy efficiency requirement, which will ensure that feed in tariffs are available to households that tackle their carbon emissions.
80. On this basis, we recommend Option 2 as the most cost-effective means of ensuring that FITs lives within its budget, improves the value for money of the FITs scheme for consumers, and strengthens DECC policy on carbon reduction.

²⁵ Lower end of range is for EPC Level C energy efficiency requirement, upper end is for Green Deal-related requirement.