



Feed-in Tariffs: Solar PV Review

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Authors: Dr Elena Ares, Oliver Hawkins and Paul Bolton

Section Science and Environment Section

This note covers feed-in tariffs for solar photovoltaic electricity generation, including the review of tariffs announced in October 2011 for installations of 250kW or smaller. This follows on from a review earlier in 2011 which covered all solar projects larger than 50kW.

The reason for the second review was the unexpectedly high uptake of the scheme. The Government was concerned that the rates of return for generators were much higher than were projected, and about the impact high uptake would have on energy bills. Critics, including the industry, were unhappy at the short timescale involved, as any new tariffs would be applicable from 12 December 2011, two weeks before the consultation closed.

The High Court and the Court of Appeal have ruled that the proposal to cut rates from 12 December was retrospective and therefore illegal but the Government lodged a request to appeal against this in Supreme Court, which was denied on 23 March 2012. As a contingency, it had produced draft regulations that would reduce the tariffs for solar from 3 March 2012 instead, which is when the cuts will now come into effect.

There were also proposals to reduce the level of return for generators who own multiple installations and proposals to link the ability to qualify for tariffs to the energy performance of a building. The Government announced that it would be going ahead with these measures in February 2012 when it also published a third consultation on solar PV setting out proposed tariff levels from July 2012.

For an overview of the scheme and details of the Feed-in Tariffs for all renewables please see [Library Note SN06200](#). For details of support for large-scale renewable generation see [Library Note SN05870](#) on the Renewables Obligation.

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1 Background

This note covers the recently announced review of feed-in tariffs (FiTs) for solar photovoltaic (PV) electricity generation, which are in place for installations of 250kW or smaller. This follows on from a review earlier this year of solar projects larger than 50kW. Background on FiTs, including other renewables, can be found in [Library Note SN06200](#).

The number of Solar PV installations in the UK has grown much faster than the Government predicted when FiTs were introduced in April 2010. At the time there were just over 5,000 existing PV installations registered with the scheme. By the middle of November 2011, over 100,000 homes had a registered solar PV installation.

This high level of uptake of the scheme is mainly the result of the reduction in costs of solar PV installations which was not foreseen when the scheme was introduced.

1.1 Original Tariff Levels

Small generators (50kW - 5MW) have to make a choice between ROCs (Renewables Obligation Certificates) and FiTs. Microgenerators ($\leq 50\text{kW}$) can only apply for FiTs. Original tariff levels for solar are set out below:

Technology	Scale	Tariff level (p/kWh)	Tariff lifetime (years)
Solar electricity (PV)	≤ 4 kW (retro fit)	41.3	25
Solar electricity (PV)	≤ 4 kW (new build)	36.1	25

Tariff levels vary depending on the scale of the installation. The tariff levels shown in the table above apply to installations completed from 15th July 2009 to 31st March 2012 for the lifetime of the tariff. After this date, the rates decrease each year for new entrants into the scheme. All generation and export tariffs will be linked to the Retail Price Index (RPI) which ensures that each year they follow the rate of inflation. The tariff levels will be reviewed in 2013.¹

2 FiTs: Timing of Reviews

The consultation response published by the Labour Government in February 2010 before FiTs were introduced set the date for implementing any changes in tariffs following the first major review as 2013. The intention was that all aspects of the FiTs would be reviewed including:

- tariff levels
- degression rates and methods
- eligible technologies
- arrangements for exports
- administrative and regulatory arrangements
- interaction with other policies
- accreditation and certification issues including the MCS.

Reviews will focus on whether the tariffs offered deliver the target returns, and whether those returns are appropriate in continuing to ensure a real contribution from small scale generation to our renewables and other targets, and that the scheme continues to deliver value for money.

The document also committed to ensuring certainty for investors:

In order to ensure that existing investors may proceed with certainty, any changes to future levels of support will apply only to investments following the review; generation tariffs the installations existing at the time of the review will be maintained. It is however our intention that the level of export tariff will be uniform across the scheme, it is therefore not possible to guarantee that the level of the export tariff will not change for individual installations.

The current Government announced a fast track review of larger solar projects to be completed by June 2011, in response to an unexpected rise in uptake by larger generators:

At the time of the Spending Review, we said that the first review of FiTs would take place as planned in 2012, taking effect in April 2013, unless higher than expected deployment triggered an early review. However, since then, we have become increasingly concerned about the risk that larger scale solar PV, unforeseen by the

¹ [Energy Saving Trust website](#) [on 15 February 2010]

modelling undertaken prior to the start of the FiTs scheme, could lead to long term pressure on FiTs costs. This risk provides a trigger consistent with the statements made at the time of the Spending Review.²

And:

Through the first scheme review, we want to secure the continued success of FiTs through sustainable growth rather than boom and bust. This means enabling industry to grow smoothly within the spending parameters confirmed by the Spending Review. Starting the review now provides us with a better chance of delivering this aim than allowing unsustainable growth which might then have to be reined in dramatically in future.³

When setting out its decisions following the first review, the Government also set out its intention to review all tariffs in the Autumn and implement any changes by April 2012, and committed to working to provide information in a timely manner:

A consultation on the comprehensive review will be launched this summer with the intention that any resulting changes to the scheme will take effect from 1 April 2012, unless the review itself reveals the need for greater urgency. As with the fast-track review, the Coalition Government will not act retrospectively and any changes to generation tariffs resulting from the comprehensive review will only affect new entrants into the FiTs scheme from that date. Installations which are already accredited for FiTs at the time the changes come into force will not be affected.

We understand that all stakeholders require information regarding the future of the scheme as early as possible and will work provide [sic] this information in a timely manner.⁴

3 First Solar Review

In February 2011 the Government announced it was bringing forward the review of FiTs that was due to be completed by 2013. The reason given for this was the unexpectedly high uptake by large photovoltaic schemes and the low uptake by anaerobic digestion schemes, neither of which had been expected. Chris Huhne, Secretary of State for Energy and Climate Change, set out details in a statement:

In light of the economic and fiscal situation, inherited by the Coalition, it is imperative that we take a more responsible and efficient approach to public subsidy, including where this subsidy is funded through energy bills. Specifically the Spending Review committed to improving the efficiency of FiTs and finding £40million of savings, around 10%, in 2014/15.

Since the Spending Review, I have become increasingly concerned about the prospect of large scale solar PV projects under FiTs, which was not fully anticipated in the original scheme and could, if left unchecked, take a disproportionate amount of available funding or even break the cap on total funding. Several large solar installations have already received planning permission. Industry projections indicate there could be many more in the planning system. In light of this uncertainty and the risk that such schemes could push FiTs uptake off trajectory and may make the Spending Review savings difficult, I have decided to end the potential for damaging

² DECC, [Consultation on fast-track review of Feed-in Tariffs for small scale low carbon electricity](#), March 2011

³ *ibid*

⁴ DECC, [Feed-in Tariffs Scheme: Summary of Responses to the Fast-Track Consultation and Government Response](#), 9 June 2011

speculation and bring forward the review of the Scheme to look at ways of correcting these early teething problems.⁵

Consultation

The consultation was launched on 18 March and closed on 6 May 2011. A DECC press release summarised the main proposals:

As solar PV technology has developed, its costs have reduced, and are now believed to be around 30% lower than originally projected. This means the technology does not need as much support to be competitive.

The Government is therefore proposing reducing the support for all new PV installations larger than microgeneration size (50kW) and stand alone installations. The new proposed rates are:

19p/kWh for 50kW to 150kW
15p/kWh for 150kW to 250kW
8.5p/kWh for 250kW to 5MW and stand-alone installations

These compare with the tariffs that would otherwise apply from 1 April of:

32.9p/kWh for 10kw to 100kw
30.7/kWh for 100kw to 5MW and stand-alone installations

Such changes are in line with amendments made to similar schemes in Europe where in Germany, France and Spain tariffs for PV have been reduced sharply over the past year.

And

The Government will not act retrospectively and any changes to generation tariffs implemented as a result of the review will only affect new entrants into the FITs scheme. Installations which are already accredited for FITs will not be affected. Solar PV installations less than 50kW are not affected by this fast track review.⁶

Changes to Solar

Following the closure of the consultation on 6 June 2011, the Government announced on 9 June its decision to introduce the reduced rates for solar PV outlined in the consultation with effect from August 2011.⁷

4 Second Solar Review – Phase 1

The Government published a consultation on the second review in 2011 of FiTs for solar PV on 31 October 2011. The consultation was to close on 23 December 2011:

DECC set out as the purposes for this Phase 1 consultation to consider:

- small-scale solar PV (with a total installed capacity of 250 kilowatts or less)
- prioritising energy efficiency by linking PV tariffs to specified minimum energy efficiency requirements from 1 April 2012, and

⁵ Written Ministerial Statement, *Feed-in Tariffs: Written Ministerial Statement by Chris Huhne, Secretary of State for Energy and Climate Change*, 7 February 2011

⁶ DECC, *Greg Barker outlines proposals to protect green electricity scheme (Press notice)*, 18 March 2011

⁷ DECC, *New feed-in tariff levels for large scale solar and anaerobic digestion announced today*, 9 June 2011

- introducing new multi-installation tariff rates for aggregated solar PV schemes, applying to new installations with an eligibility date after 1 April 2012⁸

Tariff rates

The announcement has raised significant concern because of the proposal relating to small scale solar PV. The proposal is to halve the rate for the smaller domestic project and to do so for any projects that go online from 12 December 2011, although they would qualify for the higher rate until April 2012. The consultation includes the following on the proposed new tariffs and proposed new cut off date⁹:

Band	Current generation tariff (p/kWh)	Proposed generation tariff (p/kWh)
4kW or less (new build)	37.8	21.0
4kW or less (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

December 12th cut off date

One of the main concerns raised about the proposals is the short time frame. The Government's intention is to:

apply the new generation tariffs from 1 April 2012 to all new solar PV installations with an eligibility on or after an earlier 'reference date' which we propose should be 12 December 2011. Installations with an eligibility date before the reference date will not be affected and will continue to be eligible for the current generation tariffs. Installations with an eligibility date between the reference date and 1 April 2012 would be eligible for the current generation tariffs for electricity generated before 1 April 2012, but would move to the new generation tariffs for electricity generated on or after 1 April 2012.¹⁰

In its consultation, the Government acknowledges that the 6 week time scale may result in some members of the public and organisations that are already committed to installation of solar PV missing the 12 December date, and that this may result in hardship. However it is the Government's view that the matter is so urgent that the approach is reasonable. The reasons for this are also set out in the consultation:

49. We recognise, though, that some prospective FiTs generators who have incurred or committed expenditure before this consultation is published may not be able to complete their installations and submit their applications for FiTs before 12 December 2011. If generators in this position decide to proceed with their installation and the tariff changes are implemented as proposed, they will automatically receive a lower tariff from 1 April 2012. In forming the proposal we have taken into account the possibility of

⁸ DECC, [Feed-in tariffs scheme: consultation on Comprehensive Review Phase 1 – tariffs for solar PV](#), 31 October 2011

⁹ *ibid*

¹⁰ *ibid*

hardship to persons in this situation, but we think the proposed approach is reasonable given:-

- The urgency of the concerns about the impact on the scheme's budget of continuing high levels of uptake at the current tariffs, including any rush of new installations triggered by this consultation;
- The impact will only be on prospective FiT generators who will have 6 weeks notice from the date of consultation; and
- The reduced tariffs are still expected to provide a rate of return of 5% in most cases for well sited installations and 4.5% in the case of the tariffs for <4kW solar PV installations. The FiTs scheme was never intended to provide windfall profits and in the current climate we regard these returns as reasonable.¹¹

The consultation document also raises the possibility that the reference date may be changed or not implemented at all:

50. However, we will consider representations made during the consultation both as to (i) the principle of applying the lower tariff to new installations installed from a reference date (12 December 2011) that comes before the legal implementation of those tariffs (1 April 2012); and (ii) whether the proposed reference date should be 12 December 2011 or some other date.¹²

Minimum Energy Rating requirement

Improved energy efficiency is usually the most cost effective way of saving energy and reducing emissions. The Government has included a proposal to encourage the installation of energy efficiency measures before use of photovoltaics. It proposes two options.¹³

- that from 1 April 2012 dwellings would have to have a minimum energy performance rating of C or above to qualify for a higher level of tariff for solar installations. Those dwellings that have a lower rating would receive a lower tariff of 9p/kWh for the lifetime of the project, regardless of any energy efficiency measures put in place after generation begins. An interim period running to 1 April 2013 is proposed in which energy efficiency measures can be installed after connection and still qualify. An estimated 86% of dwellings in England had an energy efficiency rating of D or below in 2009
- that all dwellings, regardless of their rating, will be required to install energy efficiency measures identified in an Energy Performance Certificate as potentially qualifying for Green Deal finance before qualifying for FiTs. The Government's view is that, though more complex to administer, this approach would encourage lower rated dwellings to participate.

It is intended that the proposed solar installation should be taken into account when determining the dwelling rating. The consultation also indicates that Green Deal funding would be allowed to pay for the energy efficiency improvements, once it is introduced towards the end of 2012. Other funding, such as CERT, may be available before this date.

Multi Installation Tariff

The consultation proposes a reduced rate for owners of multiple installations on different properties, at 80% of that of an individual project. This is because the owners of those

¹¹ ibid

¹² ibid

¹³ ibid

installations are able to negotiate greater savings on installation costs compared to individuals. The proposed rates are set out below:¹⁴

Band	Multi-installation generation tariff (p/kWh)
4kW or less (new build)	16.8
4kW or less (retrofit)	16.8
>4-10kW	13.4
>10-50kW	12.2
>50-100kW	10.3
>100-150kW	10.3
>150-250kW	10.3
>250kW-5MW	8.5
stand alone	8.5

The consultation does state that the Government is considering how to encourage community projects, and that it will be consulting on this in April and would welcome any suggestions, including views on whether a definition of community project is needed.

5 Uptake of Solar FiTs

The number of solar PV installations has grown much faster than the Government anticipated. When FiTs were first launched in April 2010 there were just over 5,000 existing domestic solar PV installations registered with the scheme. By the middle of November 2011, over 100,000 homes, or around one in 250 dwellings in the UK,¹⁵ had a registered solar PV installation. The table below shows the number and capacity of solar PV installations registered for FiTs in each month since the scheme launched. It includes all types of solar PV installation: domestic, community, commercial and industrial.

Solar PV installations registered for FiTs by confirmation date, 2010-2011

	New installations		Cumulative installations	
	Number	Capacity (MW)	Number	Capacity (MW)
Apr-10	406	1.0	406	1.0
May-10	890	2.2	1,296	3.2
Jun-10	1,403	3.5	2,699	6.7
Jul-10	1,750	4.6	4,449	11.3
Aug-10	3,626	8.7	8,075	20.0
Sep-10	2,432	6.3	10,507	26.3
Oct-10	2,352	6.5	12,859	32.8
Nov-10	2,247	6.2	15,106	39.0
Dec-10	2,066	5.8	17,172	44.8
Jan-11	3,296	9.2	20,468	54.0
Feb-11	3,432	9.9	23,900	63.9
Mar-11	4,650	13.8	28,550	77.7
Apr-11	3,598	10.5	32,148	88.3
May-11	5,430	16.3	37,578	104.6
Jun-11	5,503	16.8	43,081	121.4
Jul-11	8,225	27.1	51,306	148.5
Aug-11	11,360	34.9	62,666	183.4
Sep-11	15,855	80.5	78,521	263.9
Oct-11	14,002	64.8	92,523	328.8
Nov-11 (to the 17th)	9,499	37.2	102,022	366.0

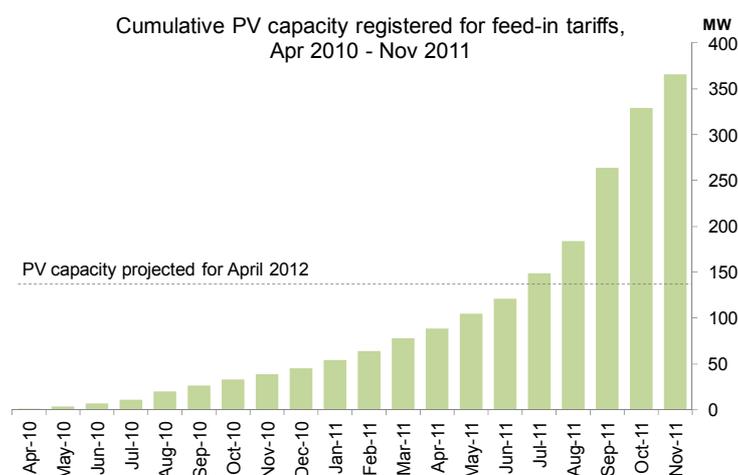
¹⁴ Ibid

¹⁵ *Annual abstract of statistics 2010*, ONS

Note: FiT installations are only confirmed on the register at the very end of the application process, so there is a lag between application and confirmation. For this reason, figures for the most recent months are likely to be underestimates.
Source: [Ofgem, Feed-in Tariff Installation Statistical Report](#)

As the table shows, the total capacity of registered solar PV installations is 366MW. The amount of new capacity being added each month has continued to increase throughout 2011, from around 9MW in January 2011, to 65MW in October 2011.

This pace of growth is faster than the Government anticipated. Before the feed-in tariff scheme was launched, the Department for Energy and Climate Change projected total registered solar PV capacity would reach 94MW in September 2011 and 137MW by April 2012.¹⁶ As the chart shows, the 94MW target was reached four months ahead of schedule in May 2011, while capacity in November 2011 is more than two and a half times the target for April 2012.



The overwhelming majority of small scale solar PV installations are domestic installations. The next table shows the number and capacity of registered solar PV installations by type.

Solar PV installations registered for FiTs by type, at 17 November 2011

	Number		%		Average installation capacity (kW)
	Installations	Capacity (MW)	Installations	Capacity (MW)	
Domestic	100,074	290.5	98.1%	79.4%	2.9
Community	484	3.4	0.5%	0.9%	7.0
Commercial	1,386	60.1	1.4%	16.4%	43.3
Industrial	78	12.1	0.1%	3.3%	155.2
Total	102,022	366.0	100.0%	100.0%	3.6

Source: [Ofgem, Feed-in Tariff Installation Statistical Report](#)

Domestic installations are 98.1% of the total number of installations and 79.4% of capacity; the difference being due to the much larger capacity of commercial and industrial installations. The average capacity of a domestic installation is 2.9kW. This is larger than the 'typical' 2.0kW domestic installation that DECC anticipated in advance of the scheme in February 2010 and the updated 2.6kW reference installation assumed in October 2011. The

¹⁶ DECC, [Feed-in tariffs scheme: consultation on Comprehensive Review Phase 1 – tariffs for solar PV](#), 31 October 2011

increasing average capacity of domestic solar installations may reflect an incentive on the part of homeowners to maximise their rate of return.

It should be noted, however, that although growth in solar power has been faster than expected, it is still just a small fraction of electricity (and renewable electricity) generated in the UK. At the end of 2010, total UK electricity generating capacity was around 90GW, of which around 8.5GW was capacity from renewable sources.¹⁷ The current total solar PV capacity is therefore around 4% of renewables capacity and 0.4% of total capacity in the UK.

The level of solar PV *capacity* will make a smaller percentage contribution to total *generation* because solar panels will only ever work for part of the day. Assuming a load factor¹⁸ of 10% the current level of capacity would have provided just less than 0.1% of total UK generation in 2010.¹⁹

6 Rate of Return

The Government set a target range of rates of return for investment eligible for FITs when the scheme was being developed. Based on their estimates of capital costs, size of installation, running costs and load factors, tariff levels were set so that these rates of return would be realised. The target range of 5-8% was included in the 2009 proposals. However within that the rate of return for solar PV was set at 5%, because it was a more proven technology. This was explained in the original impact assessment:

Consideration is given to reflect technology-specific risk and ease of deployment e.g. 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.²⁰

Installation costs were expected to fall as the solar industry expanded and could take advantage of economies of scale. This would increase rates of return if tariffs for new installations kept their real value. Therefore the original proposals planned to reduce generation tariffs for new installations from 2012/13 onwards (degression) by around 9% per year. Rate of returns have been higher than predicted for solar PV, due to a significant drop in cost of solar panels combined with increased energy prices. The October 2011 consultation sets this out:

As set out in the Impact Assessment, there is broad agreement across the industry and more widely that the costs of purchasing and installing solar PV have come down dramatically, falling in real terms by at least 30%. This reduction has been driven primarily by increased global demand, stimulated by policies such as FITs in a number of countries. The majority of the cost of an installation is currently the solar panels themselves and it is this aspect of the total cost which is reducing fastest. As a result, we estimate that the installed costs of a typical domestic solar PV project (size 2.6kW) are now around £9,000, having been around £13,000 at the time the scheme was launched.

As well as the falling costs of solar PV, the increased returns available from solar PV have also been driven by a 13% increase in retail electricity prices since April 2010, which has increased the savings from avoided consumption of imported electricity.

¹⁷ DECC, [Digest of UK Energy Statistics 2011, Chapter 5](#), Table 5.7

¹⁸ Actual generation as a proportion of the theoretical maximum if the system operated constantly at full capacity

¹⁹ [Digest of UK energy statistics 2011](#), DECC

²⁰ DECC, [Impact Assessment of Feed-in Tariffs for Small-Scale, Low Carbon, Electricity Generation](#), February 2010

We expect both these trends to continue over the coming year (and have taken this into account in setting the tariffs proposed below).²¹

These figures imply that a 'typical'²² domestic solar installation carried out when the scheme was launched would have a real rate of return of just over 5%, while a 'typical' current installation with lower capital and operating costs might achieve a return of approaching 10%. The unexpectedly large fall in the price of panels has made tariff levels more attractive. This has in turn helped the solar industry to expand faster than expected and take further advantage of economies of scale which makes current tariffs more attractive still. The Government says that FiT levels proposed in the current consultation have been set to allow a rate of return of 4.5% for domestic solar projects of less than 4kW and 5% for larger projects:

The proposed tariffs have been set in light of evidence of the falling costs of PV and are intended to provide an approximate 5% real rate of return for well located installations. This was the target return for FiTs when the scheme was started. The one exception is the tariff for installations of 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 well located domestic PV installations.²³

Using the elements of a 'typical' installation, capital costs would need to be around £8,500 in 2012-13 to achieve a 4.5% return. This installation cost would be almost 40% below the original estimate.²⁴

Estimated return on a typical domestic solar PV FiT installation

2010 prices

	Original estimates	July 2011 findings
Installation		
Capacity (kW)	2.6	2.6
Estimated annual output per kW (kWh)	850	850
Estimated annual output (kWh)	2,210	2,210
Tariffs		
Generation tariff (pence/kWh)	41.3	41.3
Export tariff (pence/kWh)	3.0	3.0
Bill savings (pence/kWh)	12.2	12.2
Expenditure		
Capital cost (£)	£13,700	£9,950
Annual operating cost (£)	£110	£70
Income		
Average net annual income (£)	£970	£1,010
Annual rate of return (%)	5.0%	9.0%
Payback time (years)	14	10

Additional assumptions:

Half of energy generated is used in the home and the remainder is exported
Returns are calculated for 25 years only
No account is taken of any reduction in the efficiency of panels over time
Energy prices do not rise in real terms

Sources:

Updates to the Feed-in Tariffs model - documentation of changes for solar PV consultation, Cambridge Economic Policy Associates Ltd and Parsons Brinckerhoff (October 2011)
Design of Feed-in Tariffs for Sub-5MW Electricity in Great Britain Quantitative analysis for DECC Final Report, Element Energy Ltd

²¹ DECC, [Feed-in tariffs scheme: consultation on Comprehensive Review Phase 1 – tariffs for solar PV](#), 31 October 2011

²² 2.6kW installation with an estimated annual output of 2,200 kWh

²³ DECC, [Impact Assessment: Feed-in tariffs scheme: consultation on Comprehensive Review Phase 1 – tariffs for solar PV](#), October 2011

²⁴ Assumes a 10% increase in energy prices in 2011 and no further subsequent real increase.

DECC's estimated 'current' costs for such an installation of £9,000 gives a rate of return of just over 10%, annual income of £1,010 and a payback time of around nine years. These payback times estimate how long it would take for annual income to match the installation costs in real terms. They do not take into account any financing costs or discounting. The proposed new tariffs mean that if DECC's target of 4.5% were met by this typical installation then annual income could be just under £600 in 2012 prices and the payback time would be extended to almost 16 years.

These figures all assume that energy prices do not increase in real terms. If an annual real increase of 2.7%²⁵ is assumed then the value of bill savings increases. The rates of return increase by around 0.4 percentage points in each case in the table above. The proportionate impact would be greater under the consultation proposals as bill savings form a larger share of the financial returns.

The proposed target rate of return for a new typical installation of 4.5% should really be viewed as an intended average only. There will be much variation around this figure and it is possible that the cuts in tariffs will make certain types of installations uneconomic and shift new installations towards those with higher expected return –larger capacity, further south in the country and with better suited roofs.

6.1 FiTs and Other Competing Investments

Rates of return from FiTs, or any other investment, need to be seen in the context of returns on alternative investments. Research for DECC estimated returns on a range of investments where capital is tied up for a number of years. The post-tax real rate of returns varied from 0.5% on index-linked National Savings Bonds to 2.1% on a repayment mortgage, 2.7% on a buy-to-let investment and 1.3-5.3% on pensions. These investments cover a range of durations and risk levels. They are however, all below the midpoint of the range of 5-8% aimed at in the 2009 FiT proposals. Actual solar FiT returns on many installations will have been above this range, particularly those carried out more recently since costs have fallen. Those investments with rates of return approaching solar FiT (property and pensions) are also more risky. All these returns can vary. The recent poor overall performance of the stock market and record low bank base rates are likely to be in part responsible for the high level of uptake of solar FiTs.

7 Reactions to the Proposals

The Our Solar Future campaign run by the Solar Trade Association made the following statement in response to the announcement:

“Such deep cuts to the tariff would kill the UK solar industry stone dead. We are happy to accept some cuts, but the Government must recognise that wiping out 4,000 companies and 25,000 jobs by cutting too deeply would be an appalling waste of economic potential. Our message to the Government is cut us, but don't kill us – we want a sustainable cut that would allow us to survive and deliver the green growth that David Cameron said he was committed to.”

“The Government has a choice – either they can cut like this and make an entire industry go bust, or they can work with us to properly plan the phasing out of the tariff

²⁵ This is the average rate assumed in DECC analysis of the impact of policies on energy prices to 2020. *Estimated impacts of energy and climate change policies on energy prices and bills*, DECC (July 2011)

bit by bit, which will produce a flourishing industry that won't need any subsidy or support."²⁶

There have also been reports of large projects that will not go ahead as a result of the proposed changes:

The industry agrees that the tariff should regress in line with falling costs, but the scale of the cut will bring to a screeching halt a successful policy to stimulate the take-up of renewables and puts at risk jobs in one of the fastest growing sectors in the economy.

In Haringey it will wreck our plans to install £15m worth of panels across our estates, which would have doubled London's solar generation capacity and brought jobs and placements to an area in London topping the unemployment league tables. The government needs to stop moving the goal posts if it wants to create the stable conditions that will attract serious long-term private investment. The European courts have already ruled the feed-in tariff needn't sit on the public expenditure accounts.²⁷

Consumer Focus welcomed the proposals, as it would reduce the level of costs being passed on to energy customers, although it did express concern about those who had already signed contracts for installation:

The Government is taking a sensible approach to protect energy bill-payers with the proposed changes to Feed-in Tariffs. Incentives to overcome the high set-up cost of solar panels and help make our energy supply greener are necessary. But the cost for this is passed onto bills of energy customers and we need to strike a balance.

'Consumers thinking about installing solar panels should still see returns of about five percent. However, the speed of the changes, with the 12 December deadline, will mean that some people who have already signed contracts could end up getting a lower return than they bargained for. This is a particular concern as we know installers have been slow to process the paperwork needed.

'We would urge consumers to make sure they ask the right questions when looking into solar panels and base their decision on whether the new tariff rates will benefit them.'²⁸

The issue of job losses was highlighted by the announcement in December by Carillion that it would be making 1000 employees redundant in its energy services division:

Carillion has put all 4,500 staff at its energy services division on redundancy notice as the firm prepares to make 1,500 job cuts.

The sweeping move has been forced on Carillion by Government cuts to solar power subsidies which are set to decimate turnover at the division. A spokesperson for Carillion said: "We expect the government's plans for much larger and earlier than expected cuts to feed-in tariffs to reduce the size of the solar PV market significantly." "In order to react to the effects of this on our business, we have launched a statutory 90-day consultation process with our people on how we can reshape our business."

²⁶ Our Solar Future, [Government's 52% feed in tariff cut will kill the UK solar sector stone dead](#), 2 November 2011

²⁷ *Guardian*. [Letters: Government U-turn needed on solar energy tariffs](#), 3 November 2011

²⁸ Consumer Focus, [Feed-in Tariff changes aim to strike the right balance – says consumer watchdog](#), 31 October 2011

The move comes just months after Carillion bought renewable energy specialist Eaga for £306m. The former Eaga operation forms the bulk of the current energy services division.

The fall-out from the solar feed-in tariff cuts also continued to hit turnover at specialist contractor Breyer this week. Breyer's £22m solar installation job for Colchester Borough Council is being cut from December 12 when the subsidy regime changes.²⁹

The Solar Trade Association's estimate is that 42% of jobs will be lost in the sector:

STA's own industry survey two weeks ago anticipated job losses of 42% in response to the sudden proposed changes in tariffs. While large company casualties are now attracting headlines, small firms are particularly vulnerable. STA anticipated initial job losses of around 9,000, but the entire sector is at risk after December 12th, as new unconfirmed tariff levels and unclear eligibility criteria will prevent business activity. DECC's own analysis shows the market could be cut over 90%. The scale of uncertainty leaves the whole sector edging towards the cliff edge.³⁰

7.1 Legal Challenge Successful

A legal challenge to the proposed December date was launched on 10 November 2011 by several solar companies:

Solarcentury has today confirmed that it is taking legal action as part of a group of solar companies, against the Department of Environment & Climate Change (DECC) because of the damage to business caused by the review of Feed in Tariffs for solar PV announced on 31st October. The group is seeking an interim injunction to stop DECC using the 12th December as the cut-off date for the current Feed-in tariffs. They claim such an early date is illegal, irrational and unreasonable.

The group wants to stop any cuts to tariff levels being made until DECC has actually completed a proper, legal review and followed the correct processes. Solarcentury and others have denounced the 31st October announcement in the strongest possible terms. Many large contracts have been cancelled following the announcement. These included major projects for Housing Associations and Local Authorities which were planned to complete by 31 March 2012, the original tariff change date, but which have no hope of completion by 12th December. The Housing Associations have lost hundreds of thousands of pounds themselves preparing for these schemes³¹

The High Court ruled on 21 December that it was illegal for the cut off date for the new tariff to be two weeks before the consultation closed. The Government lodged an application for permission to [appeal](#) against the decision on 4 January. Leave to appeal was granted. The Court of Appeal announced on 25 January that the appeal was denied by all three judges on the basis that the proposal to cut from 12 December was a retrospective cut in tariffs and therefore illegal. The full decision is available [here](#).

The Government announced that it would be seeking leave to appeal to the Supreme Court in a [Ministerial Statement](#) on 26 January. An application was made to the court on 21 February. This was denied on 23 March. As a result the cuts proposed by the Government will only take place for installations completed after 3 March.

²⁹ Construction Enquirer, [Carillion puts 4,500 staff on notice at energy division](#), 30 November 2011

³⁰ STA, [Solar job losses begin](#), 1 December 2011

³¹ Solar Century, [Solarcentury & others begin legal proceedings against Department for Energy and Climate Change](#), 10 November 2011

The Government published the following [statement](#) in response to the decision:

Responding to today's decision by the Supreme Court on the Feed-in Tariffs Appeal Energy and Climate Change Secretary Edward Davey said,

"We are disappointed by the decision of the Supreme Court not to grant permission to hear this case. But the Court's decision draws a line under the case. We will now focus all our efforts on ensuring the future stability and cost effectiveness of solar and other microgeneration technologies for the many, not the few."

7.2 New Regulations Laid

The Minister announced in a [Written Ministerial Statement](#) on 19 January that the Government had laid before Parliament draft licence modifications, as a contingency against the appeal failing. These would bring in a reduction in tariff from 1 April 2012 to generators joining the scheme on or after 3 March 2012:

I know that the uncertainty while we await the Court's decision is difficult for the industry. A retention of the 43p tariff could also create substantial risks to the FITs budget if our appeal is unsuccessful. For these reasons, we believe it is prudent to bring forward our decision on one aspect of the consultation: the proposals for new solar PV tariffs.

We are therefore laying before Parliament today some draft licence modifications which, subject to the Parliamentary process set out in the Energy Act 2008, makes provision for a reduced tariff rate (from 1 April 2012 onwards) for new PV installations with an eligibility date on or after 3 March 2012.

If the Court finds in favour of the Government's appeal, we intend to stand by all our consultation proposals, including an earlier (December) reference date, subject to the Parliamentary procedure and consideration of consultation responses. It is very important that we reserve this as an option because these 43p payments will take a disproportionate share of the budget available for small-scale low-carbon technologies. We want instead to maximise the number of installations that are possible within the available budget rather than use available subsidy to pay a higher tariff to a smaller number of installations.

8 Phase 1 Government Response and Phase 2A Consultation

The Government published its response to the Phase 1 consultation, together with a Phase 2A consultation on tariffs for solar from July 2012, on 9 February 2012.

8.1 Government Response

The Government set out various decisions made following the consultation:

- If the Government wins its appeal, the tariff applied for those eligible after the 12 December date will be no lower than proposed in the consultation
- New applications for Solar PV FITs will have to provide an Energy Performance Certificate of D or above for the building they the installation is attached or wired to qualify for the full solar tariff
- The reduced multi-installations tariff will apply to generators who have twenty-five or more installations, rather than one as originally proposed.

8.2 Phase 2A Consultation on Solar PV cost Control

This was published along a [Phase 2B consultation](#) which focuses on non PV technologies. The [2A Consultation](#) sets out proposed solar tariffs from 1 July 2012, together with a new planned degeneration rate of 10% every 6 months, with cuts being to the tariff being made every 6 months from October 2012. It also sets out a control mechanism by which these cuts could be brought forwards, with two months notice, if uptake of Solar FITs is more than 125% of what is expected:

We are consulting on generation tariffs to be applied to solar PV installations with an eligibility date on or after 1 July 2012, and on the mechanism which should be applied to the degeneration of tariffs thereafter. Specifically we are recommending a further reduction to solar PV tariffs from 1 July. We have proposed three alternative tariff tables, the choice of which would depend on the volume of deployment of solar PV in March and April 2012. We are proposing a mechanism for tariff degeneration after July which would provide a reliable method of financial control while at the same time giving a good measure of certainty to the sector and to consumers about the future path of tariffs. We are also consulting here on a potential review of export tariffs, and on whether we should reduce the period for which tariffs for PV installations should be applied, from 25 to 20 years.

The consultation included tables of three options for rates with a degeneration rate of 10%, although the document also stated that a 5% degeneration may be more appropriate. The table below sets out option A; options B and C start with higher rates for July 2012 and can be found in the consultation document. The starting tariff will be determined by uptake in March and April 2012.

Band (1 April 2012	2 July 2012	3 Oct 2012	4 Apr 2013	5 Oct 2013	6 Apr 2014	7 Oct 2014	8 Apr 2015
< 4kW	21p	13.6p	12.9p	11.6p	10.4p	9.4p	8.5p	7.7p
>4-10kW	16.8p	10.9 p	10.4p	9.4p	8.5p	7.7p	6.9p	6.2p
>10-50kW	15.2p	9.9p	9.4p	8.5p	7.7p	6.9p	6.2p	5.6p
>50-150kW	12.9p	7.7p	7.3p	6.6p	5.9p	5.3p	4.8p	4.3p
>150-250kW	12.9p	5.8p	5.2p	4.7p	4.2p	3.8p	3.4p	3p
>250-5000kW	8.9p	4.7p	4.5p	4.1p	3.7p	3.3p	3p	2.7p
Stand alone	8.9p	4.7p	4.5p	4.1p	3.7p	3.3p	3p	2.7p

Full details of all the proposals can be found in the [consultation document](#) on the DECC website, together with an [impact assessment](#). The consultation closes on 26 April 2012.

It should also be noted, as set out below that cap on FITs was increased by the Government by £197m for the current Spending Period in December 2011, by transferring some of the funds allocate to the Renewables Obligation.

8.3 Reaction to the Proposals

The Solar Trade Association expressed concerns about the impacts of the proposals on the solar industry in the UK:

The Governments own impact assessment forecasts a loss of jobs in the sector of one third during the coming year, and whilst claiming to set the industry on a more

sustainable footing, it will inflict real damage to people and businesses in the sector if these plans are carried out as proposed. 29,000 people are employed in the sector and many of these jobs are once more at risk. The speed and rate of these cuts will challenge all businesses in the sector and may cause the whole market to stagnate if the prices don't reduce at the rates that Government predicts.

Howard Johns, Chairman, Solar Trade Association says: "We welcome the extra budget and increased ambition, but if many solar workers lose their jobs this year because of these changes, how can we hope to deliver on these aspirations. Surely it must be possible to move forward without causing bankruptcy in the sector. We call on government to soften the blow to an industry that has delivered amazing things in the last 2 years, cost reduction, job creation and mass engagement. We too want a sustainable industry moving forwards but this proposal, without adjustment, will not get us there."³²

9 Select Committees Report

A Joint Committee of the Environmental Audit Select Committee and the Energy and Environment Select Committee took evidence from the [solar industry and Ministers from the DECC](#) on 29 November 2010 and the [Treasury](#) on 1 December 2011.

The Committees published their [joint report](#) on 22 December 2011. A press release summarised the conclusions as follows:

Tim Yeo MP, Chair of the Energy and Climate Change Committee, said:

"There is no question that solar subsidies needed to be urgently reduced, but the Government has handled this clumsily.

Ministers should have spotted the solar gold rush much earlier. That way subsidy levels could have been reduced in a more orderly way without delivering such a shock to the industry."

Plans to require homes to meet a 'C' rated energy efficiency standard before they can receive solar FiTs will limit access to wealthier households and could have a 'fatal impact' on the industry, the MPs warn. Eighty six per cent of homes would need to be better insulated before they could qualify for the scheme under the Government's proposals – increasing up-front costs for homeowners by £5,600 to £14,000, even before the panels are purchased.

And

The Government had evidence that solar panel prices were falling significantly as early as March 2011 but Ministers did not act to stem rocketing levels of small scale solar installations until the end of October.

According to the MPs, the consultation then announced by the Government was rushed. It was based on an inadequate impact assessment and unfairly set a 12 December deadline for changes to come into effect (reducing the FiTs for small scale solar from 43.3p to 21p) before the close of the consultation on 23 December. The scale and pace of the changes proposed was a shock for the solar industry and the suddenness of their introduction has damaged investor confidence across the whole energy sector.

³² Solar Trade Association, [Challenging times for the solar sector as further cuts are announced](#), 10 February 2012

10 Cost of the Scheme

The original Impact Assessment published in 2010 estimated the cost of its preferred option for FITs as an annual average of £610 million, as follows:

The estimated resource cost is £570m in 2020, £8.6bn cumulative to 2030

The estimated cost to consumers, cumulative to 2030, is £6.7bn. This leads to an average increase in annual household electricity bills of approximately £8.50 over the period 2011-2030.³³

10.1 Control Framework for DECC Levy-funded Spending

In April 2011 the Treasury published a *Control framework for DECC levy-funded spending*, which set a cap on the cost of FITs, as part of the decision to introduce a cap on levy-funded spending. A detailed explanation of what levy funding is and why the Treasury decided to set a cap was set out in a paper deposited in the [House of Commons Library](#) in December 2010. This explained why the spending is counted as public spending. In addition, the Government view is that:

Levy-funded subsidies will have an adverse economic impacts on particular sectors or groups (eg environmental levy-funded subsidies will increase consumer and industry costs). This should be considered in the context of other policies (including standard taxes), which may also add costs to different groups, sectors or industries.

Introducing new taxes to pay for specific aspects of spending reduces the Government's flexibility to direct resources where they are needed, and crowds out the Government's ability to raise taxes more effectively elsewhere in the economy.³⁴

The Office of National Statistics, has not officially classified FITs as levy funded spending but the Government has taken the view that it will:

The Office of National Statistics (ONS) has classified the cost of the RO as a tax and the money that is spent on the renewable energy generation as public expenditure. The ONS are also considering the classification of FITs and WHD, but based on the ONS's rationale for its classification of the RO and an unofficial (and non-binding) initial view offered by the ONS, the Government judges that FITs and WHD are also likely to be classified as tax and spend and so has provisionally included them in the public finance aggregates.³⁵

The Government gave the following reasons for imposing the cap:

A number of the Department of Energy & Climate Change's energy and climate change policies are funded through levy-funded spending, which feed through to energy bills. These fall outside of the standard spending framework. The Government has announced a new control framework for these policies to maintain the tax and spending within agreed limits. This will deliver the Government's energy objectives while capping the impact on energy bills and ensuring that these policies are affordable over the long-term.³⁶

The Treasury published a guidance document which explained how this would work:

³³ DECC, [Impact Assessment of Feed-in Tariffs for Small-Scale, Low Carbon, Electricity Generation](#), February 2010

³⁴ HM Treasury, [A quick guide to levy-funded subsidies - Tax and Spend](#), DEP2010-2374, 21 December 2010

³⁵ DECC, [Control Framework for DECC levy-funded spending: Q&A](#), December 2011

³⁶ HM Treasury Website, [Control framework for DECC levy-funded spending](#), as of 23 June 2011

DECC will [...] need to set policy such that the central forecast for DECC levy-funded spending is equal to or less than the agreed cap. This will be informed by individual forecasts for tax and spend associated with each policy, with estimates produced by DECC and agreed as necessary by the Treasury and verified by the Office of Budget Responsibility. The Treasury will have full access to the methodology behind these estimates. On a periodic basis (and at least annually) DECC will prepare updates of forecast income and expenditure on a policy-by-policy basis, as well as the latest outturn figures. These will be readied in the run-up to each fiscal event and signed-off by DECC's Chief Economist. DECC and the Treasury will agree at the outset a range of acceptable headroom above the cap, which will represent the level of permissible variation before DECC has to develop urgently plans for bringing policies back into line with the cap. The Treasury may seek a financial contribution from DECC should a satisfactory reduction plan not be brought forward. The acceptable headroom will initially be 20 per cent of the total cap but will be reviewed during the Renewables Obligation Banding Review and the Feed-in Tariffs Comprehensive Review.³⁷

The cap for the current spending review period, ending 2014-15, was originally set at £867 million for FiTs and at £9.8 billion for the renewables obligation. However this was adjusted in December 2011 with £197m of the funding earmarked for the Renewables Obligation transferred to Feed in Tariffs.

Levy Funding Cap Changes – original levels in brackets

Policy	2011-12 £m	2012-13 £m	2013-14 £m	2104-15 £m
Renewables Obligation	1,750 (1,764)	2,156 (2,191)	2,556 (2,615)	3,114 (3,203)
Feed in Tariffs	94 (80)	196 (161)	328 (269)	446 (357)
Warm Home Discount	250	275	300	310

From Control Framework for DECC levy-funded spending

Further explanation on how the cap works was set out by DECC in a [Questions and Answers](#) document published in December 2011.³⁸

10.2 Cost to Consumers

In the press release announcing the review the Government set out its projected cost to consumers unless FiT levels were reviewed:

If the Government took no action, by 2014-15 FITs for solar PV would be costing consumers £980 million a year, adding around £26 (2010 prices) to annual domestic electricity bills in 2020. Our proposals will restrict FITs PV costs to between £250-280 million in 2014-15, reducing the impacts of FITs expenditure on PV on domestic electricity bills by around £23 (2010 prices) in 2020.³⁹

Further details were provided in the draft impact assessment. This set out three options. Option 1 is to do nothing and to keep the current tariff structure with the planned degression (or reduction) of 9% per year in tariffs for new entrants. Option 2 is to restrict the current tariffs to just those installations registered before 12 December 2011; installations after this date would receive the current tariffs only until 1 April 2012 and receive the new tariffs thereafter. Option 3 is to restrict the current tariffs to just those installations registered before 1 April 2012, with the new tariffs taking effect for all installations registered after this date.

³⁷ *ibid*

³⁸ DECC, [Control Framework for DECC levy-funded spending: Q&A](#), December 2011

³⁹ DECC, [Barker: Boom and bust for solar must be avoided](#), 31 October 2011

Under the Government's proposals, options 2 and 3 can also be modified with an energy efficiency requirement; this is the requirement that a house be energy efficient to a particular standard (Band C or above) in order for any installation on the building to be eligible for the headline generation tariffs. The Government's preferred option is option 2 with the energy efficiency requirement.

The following table shows the estimated cost to consumers and uptake of solar PV in 2015 and 2020 under each of the proposed options. The impact on bills is the amount FiTs would add to the average domestic electricity bill in each year, expressed in 2010 prices. The estimated uptake is measured as the electricity generated from solar PV under each option in that year.

Estimated impact of proposals on domestic energy bills and uptake of solar PV, 2015 and 2020

	Impact on average bill ¹ (£/year)		Cumulative uptake (GWh)	
	2015	2020	2015	2020
Option 1	11.90	25.80	2,480	12,300
Option 2	2.90	3.20	890	2,100
Option 2 with efficiency requirement	2.50-2.90	2.60-3.20	590-890	800-2,100
Option 3	3.70	4.20	1,060	2,500
Option 3 with efficiency requirement	3.30-3.70	3.30-4.20	710-1,060	1,000-2,500

Notes: 1. The impact on bills is expressed in undiscounted 2010 prices.

Source: DECC, [Draft Impact Assessment: Comprehensive Review Phase 1 – consultation on Feed-in Tariffs for solar PV](#)

Under option 1, FiTs would add around £25.80 a year to a domestic electricity bill by 2020. The cost to customers is much smaller under options 2 and 3, adding around £3.20 and £4.20 a year respectively in 2020, without the energy efficiency requirement. With the energy efficiency requirement, the cost to customers under options 2 and 3 is even lower in 2020, at around £2.90 and £3.75 a year respectively. The difference between options 2 and 3 is small when compared with the difference between each of these options and option 1.

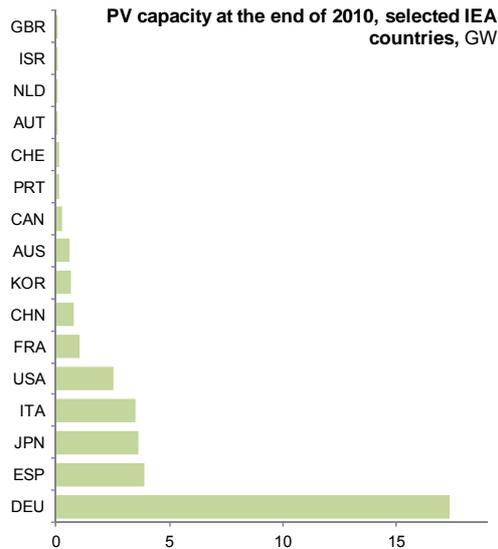
While the smaller tariffs reduce the cost to customers, they also reduce the uptake of solar PV. Under the Government's preferred option, the total amount of electricity generated from solar PV would be at most one sixth of the generation that would be delivered if the current tariff structure remained in place.

11 Solar PV Tariff Reductions in Other Countries

Countries across Europe are also reforming feed in tariffs. There is a combination of reasons for this, similar to those in the UK. The financial crisis has led to a reduction in available spending; costs of units have decreased resulting in higher than predicted rates of return and take-up; as a result there are also concerns about increased energy costs to customers. Some in the solar industry also believe adverse lobbying from what they call conventional stakeholders to have had an impact in some countries.⁴⁰

The chart below gives data on the size of the solar PV sector in International Energy Agency (IEA) countries with the most solar power. Solar capacity in Germany, the world leader, was more than 200 times the UK's level at the end of 2010.

⁴⁰ EPIA, [Global Market Outlook for Photovoltaics until 2015](#), 2011, p27



Source: Trends in Photovoltaic Applications, Survey report of selected IEA countries between 1992 and 2010, Preliminary Statistical Data, IEA-PVPS

More detailed information on the current and future levels of solar capacity in various European Countries was set out in a recent report from the European Photovoltaic Industry Association (EPIA) - [Global Market Outlook for Photovoltaics until 2015](#).

Individual Countries

- Germany has an installed capacity of 7.4 GW and a target of 51 GW by 2020. It reduced tariffs in 2010 by about 16% to an average of €0.26/kWh.⁴¹ Future yearly rate reductions (or degression) are dependent on the rate of growth in the sector in the previous year:

The degression rate for electricity from solar installations is adjusted on the basis of the new capacity installed each year (market volume) in Germany. The basic degression rate is 9 %. However, the degression can be higher or lower, depending on the capacity installed in the respective preceding year. If the installed capacity of installations registered within the twelve months before 30 September of the previous year is between 2,500 and 3,500 megawatts, the degression rate of 9 % does not change at the end of the year.⁴²

- Spain has introduced a cap for commercial projects on the number of generation hours that will receive the tariff. To compensate for this it has extended the number of qualifying years for a project to receive tariffs from 25 to 28 years.⁴³
- The Czech Republic has had significant growth over the last year, which has partly been due to what are described as overly generous subsidies. These have now been reviewed:

With 1,490 MW connected last year, the Czech Republic was the third largest PV market world-wide in 2010, mainly driven by an overly generous FiT scheme. This unsustainable growth has triggered a strong reaction from the Czech government and grid operators.

⁴¹ ibid

⁴² BMU, [Tariffs, degression and sample calculations pursuant to the new Renewable Energy Sources Act \(Erneuerbare-Energien-Gesetz - EEG\) .of 4 August 2011](#), 2011

⁴³ Renewable Energy Focus, [Turkey implements feed in tariffs, Spain Cuts](#), 7 January 2011

In addition, in February 2010, the publicly owned Czech transmission system operator CEPS asked the main distribution operators to stop permitting all new renewable energy plants due to the potential risk of grid instability. This moratorium was still in place at the beginning of 2011 despite many promises and will not be abolished until a vote for improved legislation takes place in September 2011. In October 2010, the legislation was amended to suppress all FiTs for ground-mounted systems on agricultural land and for systems above 30 kW from 1st March 2011. In November 2010, the Parliament removed the possibility of exemption from income tax for five years for all producers of renewable electricity. It introduced a 26% retroactive tax on benefits generated by all PV installations over 30 kW, applicable to systems installed in 2009 and 2010 and payable in 2011, 2012 and 2013.

A new revision of FiTs is foreseen for 2012. In parallel, the new legislation under preparation, which is likely to impose an obligation of remote supervisory control for installations of over 100 kW, strengthens the permit procedure for systems over 1 MW, sets a FiT ceiling at CZK6,000 (€248) per MW and creates new requirements for the recycling of PV panels.

- According to the EPIA there is confusion about the situation in Italy, where there may have been as much as 6GW of installations. However, only 2.3GW had been effectively connected to the grid by the end of 2010. A restructuring of tariffs took place in 2011 to reduce the cost to consumers and keep tariffs in line with the reduction in installation costs.⁴⁴
- France saw significant growth in 2010 which resulted in a decision temporality to halt approval of all large installations for three months from December 2010:

With 719 MW connected to the grid last year, the French PV market has finally shown the progress many have been expecting for several years (around 100 MW of the total came from 2009 installations that were connected in 2010). This good news was tempered by a series of changes in the regulatory framework and the brutal decision to halt installations. As seen in other countries, the high profitability resulted in many PV projects being submitted following the French authorities' declared intention to reduce FiTs. The sudden boom led the Prime Minister to declare in December 2010 a three month moratorium on demands for new PV installations above 3 kW and a suspension of projects awaiting grid connection.⁴⁵

Systems up to 100kw have had tariffs reduced by 20%, with a yearly cap of 100MW, and a tendering process has been introduced for larger installations, including ground mounted ones, with a yearly cap of 300MW.⁴⁶

Details on further countries, within Europe and further afield, can be found in [Global Market Outlook for Photovoltaics until 2015](#). In addition the EPIA has published a detailed analysis [European PV Support Schemes Overview: Photovoltaic Observatory Q1 2011](#) comparing levels of FiTs across Europe.

⁴⁴ EPIA, [Global Market Outlook for Photovoltaics until 2015](#), 2011

⁴⁵ EPIA, [Global Market Outlook for Photovoltaics until 2015](#), 2011

⁴⁶ *ibid*