



**Sheffield Renewables Ltd**  
South Yorkshire Energy Centre  
25 Alexandra Road  
Sheffield S2 3EE

A society registered under  
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Reg.no. IP030736

Tel: 0114 250 8367  
[www.sheffieldrenewables.org.uk](http://www.sheffieldrenewables.org.uk)

## **Feed-in-Tariff Review: A Response from Sheffield Renewables**



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## Executive Summary

Sheffield Renewables was dismayed to learn of the planned closure of the FiT incentive for renewable energy schemes. The FiTs have lent financial viability to our community energy schemes, without which we would not have been able to install our three 50kW solar PV arrays. Our PV schemes have so far benefited Paces Campus (a centre for children with cerebral palsy and other motor disorders), Swinton Fitzwilliam Primary School (pictured above) and South Yorkshire Police.

The installations are generating carbon-free, non-polluting electricity, from which Sheffield Renewables is generating the income needed for further community schemes. The 3 schemes will save around 56,000 kg of CO<sub>2</sub>, producing 127,000 kWh of clean electricity a year. The loss of the FiTs means the end of financial viability for our PV plans, and threatens the future of Sheffield Renewables itself. Moreover, a government-approved ending of FiTs sends a clear message to the general public that renewables are an unaffordable financial burden, a well-meaning ideal best saved for times of greater economic prosperity. Nonsense.

The decision to end FiTs not only lacks sound logic but also sufficient analytical rigour. A society powered largely by renewables is a more secure, productive, smarter, civilized, more prosperous and healthier society.

With solar, hydro, and wind power there are no greenhouse gases, NO<sub>x</sub>, CO, CO<sub>2</sub>, VOCs, SO<sub>x</sub> or particulate matter (PM) while generating electricity. Greenhouse gases generated in producing the technology is offset well within the life time of the technology, with solar power this is within 2 years of generating. In contrast, traditional thermal electricity generation methods are primitive, inefficient and irrationally out of sync with our long-term needs. We are already counting the cost of our ongoing fossil fuel fixation. It is widely reported<sup>1</sup> that there are 29,000 deaths in the UK due to air pollution every year. Much of this has fossil fuel combustion at its source and is therefore wholly avoidable. Factor in chronic health issues that lead to millions of hours of lost productivity every year and it becomes clear that, contrary to the plans, it would be the *limitation* of fossil fuels and an increase in renewables that would have the greatest economic benefit.

Furthermore, the catastrophic effects of releasing into the atmosphere CO<sub>2</sub> and methane from fossil-fuel sources (long since removed from any natural carbon cycle) is very widely known and accepted both in and out of the scientific community. Climate change is causing

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<http://www.standard.co.uk/news/london/londons-toxic-air-has-already-caused-1300-premature-deaths-this-year-10296515.html>



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misery for people in the most affected regions, creating conflict, reducing farmland and crop yields and forcing mass migration. All of this has a direct or indirect negative economic effect on the UK. A comparatively small investment now will help to avoid astronomical costs that will come with climate change if we do not act now.

Sheffield Renewables fully understands the need for a fiscal approach that will begin to address not only the budget deficit but also the national debt, standing at £1.5 trillion and costing £43 billion in interest payments annually. Nevertheless, and in fact precisely *because* of this, Sheffield Renewables disagrees with the proposal to shut down the FiT scheme for renewable energy technologies, an initiative remarkable in its success and ability to connect with the British public. Now is not the time to cut the vital supply of FiTs, now is the time to press forward using the significant momentum that has built and truly make a significant positive impact in this vital field, an impact that will last for generations.

A spirit of innovation needs to be further encouraged in this vital area, building on the success of UK-based companies such as Intelligent Energy, Johnson Matthey and Dyesol. Our academic institutions, so busy in this area, are too numerous to list. There are very bright minds in the country and they need to be encouraged, and it is the government's job to do this. DECC needs to be allowed to continue to perform a useful function.

Renewable energy offers considerable investment and job opportunities. In the past four years the renewable energy sector has offered £42 billion worth of new investment, and is expected to deliver an additional £100 billion by 2020. The sector is responsible for creating at least 122,000 jobs, with a considerable chunk of those now at risk, with estimates around 20,000 jobs potentially lost if the government's proposals are introduced.

Widespread adoption of renewables in the UK sends a positive message to our international partners that this remains a considerate, responsible and forward-looking country (like Germany, Denmark, USA and South Korea) embracing new ideas, is technologically ambitious and does not need to depend on regressive fossil fuel solutions. We would like to see further breakthroughs achieved *because* of UK government intervention, not in spite of it. Sheffield Renewables urges a rethink, and at the very least an exemption for charities and social enterprises.

The cut in subsidies to the renewable energy industry does not reflect fairness in the energy sector, in comparison to the subsidies given to fossil fuels. Renewable sustainable energy sources are essential if the government wants energy security and to keep energy costs down in the longer term. The government is suggesting that it wants to increase low carbon energy like nuclear and fracking and is willing to subsidise these industries through tax breaks - a different form of subsidy than that currently given to renewables.



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Fracking is not a viable option, because public opposition is overwhelming and this is a guaranteed vote-loser. Too much time and effort has already been wasted on fracking proposals and it should be abandoned. The conversation needs to remain with renewables, not finding new ways to burn the same old junk.

George Osborne has spoken of the "huge potential" of shale gas, and announced plans in his autumn statement to halve the taxes levied on fracking companies exploring for the gas. David Cameron said "It's a nascent industry. We are not giving it a subsidy, we are just saying effectively that there should be a tax regime on this industry that encourages it to get going and, crucially, encourages it to get going and to reward local communities".

In a written answer to Parliament, Minister Andrea Leadsom confirmed the current Spending Review is looking at redirecting renewable energy subsidies towards other sources of low carbon energy, which includes fracking and nuclear power. There is therefore recognition by the government that low carbon energy requires some form of state support and renewable energy, which could make up a significant element of the UK energy mix, should be afforded a similar level of support if it is to survive.

If the proposed cuts go ahead this will have a detrimental effect on the development of renewable energy in the UK's energy mix. This goes directly against the opinion of the general public. In DECC's Public Attitude Tracker, Wave 12, clearly demonstrates a clear and ongoing support for renewable energy. As the summary section for renewable energy states:

*'RENEWABLE ENERGY SOURCES: continue to receive high levels of support, over three quarters of UK adults (76%) support the use of renewables to generate electricity, fuel and heat in the UK, a similar proportion to September 2014 (78%) and December 2013 (77%).*

- Level of support for individual renewable energy sources also remain stable to that reported in September 2014; off-shore wind (74%), onshore wind (68%), wave and tidal (74%) and solar (81%). Support for biomass represents a slight increase at 65%, up from 60% in December 2013'*

The proposed cuts strongly contradict public opinion. In contrast to this, in the same Public attitude tracker it states that Shale gas has the support of 24% of people surveyed, while 34% support the use of nuclear energy. Government energy policy must reflect the wishes of the public. The public have entrusted the government to act on their wishes, yet government policy does not currently reflect this.



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## Sheffield Renewables' Responses to Consultation Questions.

### 1. Do you agree or disagree with the proposed generation tariff rates set out above<sup>2</sup>? Please provide reasons to support your answer.

We strongly disagree with the proposed generation tariff rates, particularly for Community Renewables.

Sheffield Renewables has been in existence since 2007. We were formed to design, fund, own and operate renewable energy schemes in Sheffield. When we first looked at the renewable energy systems we might install we found the costs of solar PV prohibitive. However, in 2013 when we looked again, because of the introduction of the feed-in-tariff, we found that our financial model would support solar PV. This has been replicated throughout the country as there has been enormous increase in solar PV since the introduction of the Feed-in-tariff with 35,000 people currently employed in the solar industry in the UK.

The introduction of the Feed-in-tariff also brought about large reductions in CO2 emissions. In Sheffield alone there are over 10,000 solar PV schemes of all sizes with an installed capacity of nearly 34,000 kW. This is saving nearly 17,000 kg of CO2 every year. It is also bringing FiT income into the city, a large proportion of which is being spent locally.

Community Renewables generally raise capital through a Community Share offer. Even with very low organisation costs (most of our development work has been done by volunteers), we can at present only offer our investors a dividend of 3%, with 1.5% going into a Community Benefit Fund.

If the feed-in-tariff is removed, our financial model will not work.

So far we have installed two 50kW solar PV schemes, one on a community building and one on a primary school. We are in the process of installing our third 50 kW scheme on a police station. This will use all the capital that we raised through a community share offer in 2012.

We had intended to run another Community Share offer very shortly to raise a further £200,000 to install three more 50kW PV schemes. However, if the feed-in-tariff is cut to 3.69p per kWh we will not be able to offer investors a dividend, or be able to repay their investment within the 20 years of operation (see table 1 – total income does not cover total

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This refers to the consultation report.

repayments and dividend, even at only 3%). Even though many of our investors are 'patient' investors and invest more for environmental/ethical reasons rather than to make money, they do expect their capital to be returned. If we are unable to offer them a safe place for their investment, it is very unlikely that they will invest in other areas. Our schemes unlock capital that other less ethical schemes cannot unlock.

If we (and other community organisations) are unable to install any more schemes, a large amount of possible solar PV installation will not be installed. Many domestic schemes may still be able to go ahead as householders can extend a mortgage to buy solar PV panels. Many commercial schemes may still go ahead as companies with high electricity use will reap the immediate benefits of free daytime electricity. It is community schemes that will no longer be financially viable.

Costs Based on Swinton Fitzwilliam project	
Planning Permission	195
Legals	400
Structural survey	1,000
Export meter	42
Project management	3,500
Installation	64,560
<b>Total cost</b>	<b>69,697</b>
Dividend, 1 year (@3%)	2,788
Dividend 20 years	55,760
<b>Total, Installation and dividend</b>	<b>125,457</b>
<b>Income</b>	
Generation	40,000
Electricity payments	3,600
Feed-in Tariff	1,476
Total income, one year	5,076
Total electricity sales, 20 years	79,262
Total Feed-in Tariff, 20 years	32,445
<b>Total income, 20 years</b>	<b>111,707</b>

*Table 1, Cost of installing a 50kW scheme, financing shares and the income generated with a reduced FiT rate.*

**2. Do you agree or disagree that the updated assumptions produced by Parsons Brinckerhoff are reflective of the current costs of deployment for UK projects in your sector? If you disagree, please set out how they differ and provide documented evidence, such as invoices and/or contractual agreements to support this evidence. Please also mark this evidence as commercially sensitive where appropriate.**

We disagree with the assumptions produced by Parsons Brinckerhoff - they are a poor reflection of the cost of renewable energy in the UK, and the assumptions the report uses are not sufficient.

Sheffield Renewables can reliably comment on hydro and solar technology. As the report states, the responses collected were small, a very poor reflection of the industry and projects in operation, with the majority of responses from small scale wind and hydro, this is not representative of the renewable energy mix within the UK. The assumptions are not fully evidenced based. Sheffield Renewables feel that the authors of this report did not make much effort to obtain responses, for whatever reason. Responses from solar were only from domestic installations. As far as we are aware no effort was made to contact the community renewable energy sector. This sector is renowned for sharing information and being willing to assist in all matters related to the community and energy. They would have provided an excellent source of data, due to the varied sizes of projects, small domestic projects to solar farms.

The Parson Brinckerhoff report discusses technical potential - it dismisses buildings such as flats as inappropriate. There are however many solar installations on domestic flats: 3 projects delivered by Brixton energy on Elmore House, Styles Gardens and Roupell Park - ALL blocks of domestic flats in Brixton. This is an example of poor collection of evidence to base assumptions on. Parson Brinckerhoff state technical potential as follows:

*'For domestic technical potential, Parsons Brinckerhoff determined the total number of households in the UK using Office for National Statistics figures. 38% of these buildings were discounted due to being 'inappropriate' buildings such as flats (i.e. apartments) or listed buildings. The average domestic building size in m2 and an associated roof area for these buildings was calculated. It was estimated by Parsons Brinckerhoff that 40% of appropriate buildings have a pitched roof area that pointed south (or south-east or south-west).*

*Parsons Brinckerhoff determined that the average domestic property could install a 3.5kWp system.'*

Assumptions of potential vary from the report commission by DECC in 2009, that developed a methodology for assessing potential for various renewable technologies, including solar. This report has been widely used in the renewable energy sector to calculate potential for



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large regions and states that 25% of domestic roofs would be suitable for 2kW schemes, 50% of new builds would be suitable for 2kW schemes, 40% of commercial buildings would be suitable for 5kW schemes and 80% of industrial buildings would be suitable for schemes, with size potential regionally variable. The DECC methodology is more rigorous in its evaluation of suitable roofs for solar and seems to be an oversight not to use this methodology, which would potentially give a structured evaluation of roof potential, from experience in assessing site suitability we feel that the DECC methodology is a better representation. It is also not essential to have solar panels on a pitched roof, facing between south-east to south-west, as stated above by Parsons Brinckerhoff, anywhere between east and west is suitable and from flat roofs to relatively steep pitches, depending on the orientation.

The assumption that capex does not include grid connection costs is a poor assumption, as without grid connection, most projects will not generate an income. All grid connected solar projects are potentially liable for costs in improving the local network through the district network operator, this is an essential cost to factor in to the business case for capital costs. Table 2 shows the actual capital costs for all three of Sheffield Renewables schemes. These costs are not exceptional and are felt to be a fair representation of this type and size of project.

<b>Project 1 – 50 kW retro fit Paces Campus</b>	
<b>Permissions and certificates</b>	<b>£</b>
Energy Performance Survey	1,000
Planning Permission	200
Structural Engineer's report	400
<b>SUB TOTAL</b>	<b>1,600</b>
<b>Equipment costs</b>	
200 Axitec solar 250W polycrystalline solar PV modules with 12 year product guarantee	26,300
2 SMR tripower three-phase G59 type tested 17,000TL – 10 inverter	4,800
1 SMA tripower three-phase G59 type tested 10,000 – TL inverter	2,100
3 ten year SMA warranty	1,000
10 DC string fuses	550
100 German schletter single fix-V roof fixings and mounting framework	4,800
5 rated A-C isolator 32 amp per phase	120



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8 dual string rated D/C isolation points – 1000 v dc	420
1 fire isolation point	320
1 Ofgem approved three-phase Elstor A1100c total generation meter	180
Circuit protection device up to 17 <sup>th</sup> edition standard including RCD and distribution board	410
1000m DC SWA cabling	1,300
Public display unit, including transmitter, receiver and wiring	1,500
Conduit and miscellaneous	500
<b>SUBTOTAL</b>	<b>44,300</b>
<b>Installation Costs</b>	
MCS Design, testing, commissioning, paperwork, handover & training	1,500
Part A & Part T commissioning to Building Control and NAPIT	500
Installation by a Homeco energy installation team	4,600
Roof access – scaffolding, fall rail and safety fencing	2,300
Delivery	200
<b>SUBTOTAL</b>	<b>9,100</b>
<b>TOTAL PROJECT COST</b>	<b>55,000</b>
<b>£ per KW excluding VAT</b>	<b>1,100</b>
<b>Project 2 – 50 kW retrofit Swinton Fitzwilliam Primary School</b>	
<b>Permissions and certificates</b>	
Energy Performance Certificate	1,000
Planning Permission	200
District Network Operator grid improvements	500
<b>SUB TOTAL</b>	<b>1,700</b>
<b>Equipment costs</b>	
200 Axitec Solar 250 watt PV modules	26,400
3 SMA tri Power inverters	7,200
10 year SMA warranty	1,000
9 DC string fuses	550
200 Schletter single fix roof fixings and mounting framework	4,800



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5 rated A/C Isolator 32amp per phase	120
9 Dual String Rated D/C Isolation Points	440
Ofgem approved Three Phase Elstor A1100c Total Generation Meter	180
Circuit Protection Device up to 17th edition standards including RCD and distribution board	410
1000m DC and SWA Cabling	1,300
Public Display Unit, including transmitter, receiver & wiring	1,800
Conduit and Miscellaneous	500
<b>SUB TOTAL</b>	<b>44,700</b>
<b>Installation costs</b>	
MCS Design, Testing, Commissioning, Paperwork, Handover & Training	1,500
Part A & Part P Commissioning to building control and NAPIT.	500
Labour	3,600
Scaffolding, fall rail and safety fencing	2,000
Delivery of equipment	700
<b>SUB TOTAL</b>	<b>8,300</b>
<b>TOTAL PROJECT COST</b>	<b>51,900</b>
VAT @ 20% of equipment and installation costs (able to claim back)	10,600
<b>£ PER KW inc. VAT/ex. VAT</b>	<b>1250/1038</b>
<b>Project 3 – 50kW retrofit, Attercliffe Police Station</b>	
<b>Permissions and certificates</b>	
Energy Performance Certificate	0
Planning Permission	200
District Network Operator grid improvements	0
<b>SUB TOTAL</b>	<b>200</b>
<b>Equipment costs</b>	
175 LG Mono X Neon black framed 285 watt monocrystalline solar PV modules	30,930
1 SMA three phase G59/II type tested Inverters with TEN year warranty, fuses	8,400
176 K2 Slate Roof Fixings and Mounting Framework	5,400



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5 Rated A/C Isolator 42amp X1 / 25amp x2 / 80amp X2	120
9 Dual String Rated D/C Isolation Points – 500v dc	550
Ofgem approved three Phase Iskra GSM Total Generation Meter	180
Circuit Protection Device up to 17th edition standards including 80amp 300mA RCD	420
500m 6mm DC and 20m 6mm AC twin & earth Cabling	400
50M of 25mm SWA	600
20m of 25mm cable tray / conduit / trunking where required – external and internal	500
DNO application	500
<b>SUB TOTAL</b>	<b>48,000</b>
<b>Installation costs</b>	
Structural Report	500
MCS Design, Testing, Commissioning & Paperwork	1,000
Part A & Part P Commissioning and notifications	200
Labour	6,000
Scaffolding	5,000
Rubbish Removal	200
Delivery	500
<b>SUB TOTAL</b>	<b>13,400</b>
<b>TOTAL PROJECT COST</b>	<b>61,800</b>
VAT @ 20% of equipment and installation costs (able to claim back)	12,300
<b>£ PER KW inc. VAT/ex. VAT</b>	<b>1,482/1,236</b>

*Table 2, Actual project costs for Sheffield Renewables solar projects*

We can submit invoices for the above three schemes if further proof is necessary.

Table 3 shows the operational costs for all 3 projects. Due to Sheffield Renewables currently having no employee costs, operational costs are considerably lower than similar commercial schemes. On top of this the running and office costs are minimal for our organisation. This the only way in which such schemes can achieve a rate of return.



<b>Operational costs for all 3 schemes</b>	<b>£, per year</b>
PV operation and maintenance	2,887
Contribution to office costs	2,152
<b>TOTAL OPERATIONAL COST per year</b>	<b>5,039</b>
<b>OPERATIONAL COST PER KW (150 KW IN TOTAL)</b>	<b>33.59</b>

*Table 3, operational cost for Sheffield Renewables solar projects*

Capital costs stated in the Parsons Brinkerhoff report are £950, £1250 and £1,550 for low, central and high cases respectively for 10-50 kW retrofit. The cost of the projects Sheffield Renewables has undertaken are felt to be realistic based on discussions with other community organisations. The slight variation in cost is due to the varying technical needs of each site.

Operational costs stated in the Parsons Brinkerhoff report are £7.30, £9.10 and £10.90 for the low, central and high cases respectively for 10-50 kW retrofit. Sheffield Renewables operational costs are £33.59, as mentioned previously, Sheffield Renewables operational costs are extremely low, with no employee costs to support. It is clear that operational costs would be considerably higher if these additional costs were factored in. Costs stated by Parsons Brinkerhoff are not representative of the solar sector.

It is unacceptable to use a report, which assumes so much, to base such decisions as the future of the FiTs. With at least 20,000 jobs at risk and an industry that will potentially collapse with the removal of the subsidy, Parsons Brickerhoff has not delivered a sufficient technical report on the most prevalent renewable technology in the UK.

Not only is the cost assumption inadequate for solar, it is also the case for hydro. Sheffield Renewables has considerable knowledge on the cost of developing and building hydro projects, with many industry experts volunteering with the organisation. The capital costs of the project are stated in Table 4.

	<b>Cost, £ per year</b>	<b>Notes</b>
Fixed Price Contract	850,000 – 1.3Million	Based on tender prices
Project Manager	35,000	1 year at £30k p.a. plus ON costs (YW want someone on site full time)
Third party fees	Confidential	Fees to YW, CRT and SCC
Development costs	48,000	These are essential in order to bring the project to tender readiness and include Project Manager, Feasibility Study,



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		Environmental Report, Flood Risk Assessment, Fish pass evaluation, Fish Survey, Topographical Survey
<b>TOTAL</b>	<b>1.148 million</b>	Taking an average of the fixed price contract
<b>£ PER KW</b>	<b>14,350</b>	

*Table 4, Capital costs for Sheffield Renewables Jordan Dam Hydro project*

The costs stated in the Parsons Brinckerhoff report for 50-100 kW capacity are £2,682, £5,158 and £7,635 for the low, central and high case. There is considerable deviation from the cost, of 14,350 per kW that would have been incurred by Sheffield Renewables for capex. Almost double the cost for the 'high case'.

The operational costs for the Jordan Dam hydro project are stated in Table 5.

	<b>Cost, £ per year</b>	<b>Notes</b>
Maintenance (Routine)	7,500	Daily site visits required to clear screen and refill lubricant every 6 weeks. An annual inspection required by a qualified hydro engineer.
Insurance	2,300	
Essential overheads	3,550	These overheads are required to keep the organisation in minimum operation in order to administer the scheme and manage shares
<b>TOTAL</b>	<b>13,350</b>	
<b>PER KW</b>	<b>166.88</b>	

*Table 5, Operational costs for Sheffield Renewables Jordan Dam hydro project*

The costs stated in the Parsons Brinckerhoff report for operation of a 50-100 kW capacity scheme are £5, £93 and £181 for the low, central and high case respectively. Sheffield Renewables operational costs, of £166.88 per kW, come in towards the 'high case', this is only the case because we have considerably lower essential overheads than a commercial organisation as all work after the project build would have been carried out by volunteers. If the operation of the project was managed by a waged member of staff it would push these operational costs well over the 'high case'. The costs for Jordan Dam are similar to other operational costs of community energy schemes.

The hydro project at Jordan Dam became non-viable due to spiralling costs caused by the late discovery of buried infrastructure, potential additional costs relating to a second fish and eel pass requirement being deemed as Sheffield Renewables liability by the



Environment Agency, which they had not originally identified, as well as the cautious assessment of risk by Sheffield Renewables.

The considerably larger costs for development are echoed across the hydro industry. As an example, Derby council spent £2 million on developing and installing a hydro power turbine on the River Derwent for a 230kW, giving a capital cost of £8,695 per kW. Parsons Brinckerhoff state that for this capacity band the highest case capital costs would be £6,143 per kW, and the low and central case £2,682 and £5,158. Whitby Esk Energy's hydro project is a 50kW turbine and cost £470,000, giving a cost of £9,400. Stockport Hydro and River Bain Hydro both had capital costs of £10,000 per KW, for a 60kW and 45kW respectively. The only known scheme that comes within the cost estimates of Parsons Brinckerhoff is High Torrs hydro, which cost £330,000 in 2008, giving £5,2838 per kW, but this is not directly comparable as it was 7 years ago. All the figures mentioned here are publicly available, why were they not used by Parsons Brinckerhoff to form an accurate cost case? This is a fatal oversight of Parsons Brinckerhoff, it is unacceptable to use such a report that has not effectively collected data across the industry.

Parsons Brinckerhoff do state that;

*'Parsons Brinckerhoff's view is that the likely reason for an absence of a trend is because each hydro project is unique in its construction and design requirements. The distribution of data within each capacity band is very large, even when outliers have been removed from the data sets.'*

This is correct, but is not reflected in the variation of costs between the low, central and high case for capacity bands stated by the report. As with the solar cost analysis, it is deeply flawed and inaccurate.

**3. Do you consider the proposed default degression pathways fairly reflect future cost and bill savings assumptions in your sector? Please provide your reasoning, supported by appropriate evidence where possible.**

The proposed default degression pathway does not reflect the future cost and bill savings assumption within the renewable energy sector, particularly in the community sector. There has been no evidence presented that shows that the degression pathway reflects the cost of installation and operation of renewable energy technologies. If the assumptions are generated using evidence collected in the Parsons Brinckerhoff report, the response to question two has made it clear that the evidence collected is flawed and inaccurate. It does not reflect the real cost of installation for solar and hydro projects. An automatic degression cannot predict what will happen with the cost of installation and market trends. Drastic cuts to FiTs will cause the cost of installation to rise. This is due to catastrophic job losses within the industry, resulting in fewer installers able to do the work. FiTs are currently helping to



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keep the cost of installation 'reasonable', the changes in FiTs will stop this. The consultation document states:

*'Default degression aims to ensure tariffs decrease in line with forecast reductions in the cost of deployment.*

- For solar PV, this is set at a baseline rate of 3.5%, although if deployment is lower than a specified floor threshold, degressions can be skipped for no more than two consecutive quarters. '*

We are concerned that there has not been a full description of what the 'specified floor threshold' would be, or how it would be calculated. We feel that it would likely be set arbitrarily low. This is an important factor if DECC plan to use it as the base line for degression.

**4. Do you consider it appropriate to harmonise the triggers for contingent degression across all technologies, and do you consider the proposed triggers will ensure tariffs reflect falling deployment costs? Please provide your reasoning, supported by appropriate evidence where possible.**

Sheffield Renewables feels that "harmonising degression" is a clumsy and ignorant approach. Renewable technologies are highly nuanced and all have their advantages and disadvantages. Each technology needs to be carefully reviewed and have tailored proposed figures. Deployment costs will rise and standards will fall once the industry is purged of the skilled personnel currently working in this sector. Growing public cynicism caused by FiT cessation will only set the industry back and divert attention and funding from invaluable research taking place all over the country.

**5. Which of the options for changing the export tariff outlined above would best incentivise renewable electricity deployment while controlling costs and enabling the development of the PPA market? How should we account for the additional and avoided costs to suppliers associated with exports in setting the export tariff? Please provide reasons to support your answer.**

None of the options listed are ideal. The best of the cases would be to offer a fixed price, but the fixed price proposed is too low to be of financial help to the solar industry. Costs have fallen dramatically since the introduction of the FiT, but not enough to allow it to go to a net zero subsidy state.



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A fixed price allows organisations to borrow money for projects from lenders and maximise the equity raised through share offers, for example. If the rate was variable, it would make this more difficult to do and add cost to borrowing money.

To account for additional and avoided cost and third party changes, transparent calculations are needed, which is added to market price to give a fixed price export tariff. The current tariff however is too low, as already stated above.

**6. Do you agree or disagree with the proposed changes to the indexation link under the FiTs scheme? Please provide reasons to support your answer.**

Sheffield Renewables does not have a strong opinion on this matter.

**7. Do you agree or disagree with the proposal not to include any additional technologies in the FiTs scheme? Please provide reasons for your response.**

We would expect FiTs to be reserved for truly low carbon technologies. If new technology are available that produce electricity in an environmentally neutral way, that does not involve burning carbon, they should receive the FiT.

**8. Do you agree or disagree with the proposal to introduce deployment caps under the FiTs scheme? Please provide your reasoning.**

The Executive Summary gives clear details on Sheffield Renewables opinion on the overall changes to the FiT scheme. To clarify, we are totally opposed to deployment caps as this is a significant backward step in assisting the development of a clean, green economy. It will be detrimental to the UK's economic fortunes, health, productivity and national security. The analysis which has been used as the evidence to propose these changes to the FiTs is flawed and unsound, we reject its credibility.

Projects developed by Sheffield Renewables take a considerable amount of time to complete, and each project varies. Our first project took 9 months from writing the business case to installation. Our second project took 6 months and our third took 1 year. These development times are typical, particularly for community/voluntary organisations such as Sheffield Renewables, due to the fact that most work is done by volunteers and dealing with interested parties, such as the council or management companies can take time. It is essential that in order to develop a feasible scheme, not only does the FiT need to be available to make it financially viable, but certainty is also required. With deployment caps



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this would lead to yet another barrier to development, to an industry that already suffers serious instability, solely due to policy uncertainty.

We propose that you continue to keep funding available for community organisations particularly to carry on their exceptional work, allowing them to set up larger, high profile and more publicly visible schemes.

**9. Do you agree or disagree with the proposed design of the system of caps (i.e. quarterly deployment caps broken down by technology and depression band)? If you disagree, are there any alternative approaches? Please provide your reasoning, making clear if your answer is different for different technologies or sectors.**

We disagree with this system, which will be unworkable in reality, due to the complexity of the system and the uncertainty it would bring to many developments, seriously affecting business planning. A reappraisal of the renewables sector is required to realise that it's the only way forward if the government is remotely serious about its legal obligations and wide-ranging social responsibilities. The costs of carrying on regardless in a "business as usual" manner with primitive technologies are extremely high, unaffordably so.

**10. Do you agree or disagree with the proposed approach to implementing caps? If you disagree, are there any alternative approaches that you'd suggest? Please provide your reasoning, making clear if your answer is different for different technologies or sectors and provide any views on what should happen to applications for FITs for installations which miss out on a cap.**

As question 8 and 9 have already made clear, we strongly disagree with the approach. The only alternative approach to the overall system of depression, which is fair and will genuinely aid the development of the renewable energy sector and bring the market to maturity is clear stable depression pathways. This depression must be based on real data on the cost of each technology and the required amount of subsidy needed in order to make schemes financially viable. These depression pathways must be calculated in an open manner and be open for evidence based scrutiny by the industry.

**11. If it is not possible to sufficiently control costs of the scheme at a level that Government considers affordable and sustainable, what would be the impact of ending the provision of a generation tariff for new entrants to the scheme from January 2016, ahead of the 2018-19 timeframe or, alternatively, further reducing the size of the scheme's remaining budget available for the cap?**



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**Please consider the immediate and broader economic impacts and provide your reasoning.**

We have already exhaustively described the immediate and broader impacts of ending the generation tariff, not just in terms of the economy but also in terms of public health, national security and job threats. Sheffield Renewables believes that it is neither 'affordable' nor 'sustainable' to diminish the financial viability of renewable energy technology implementation at this critical time by removing the FiTs, which will ultimately push the UK further towards fossil fuel dependency in order to meet its energy requirements.

Sheffield Renewables are concerned with the figure the government consider affordable and sustainable? Why is £75-100 million sustainable for renewable energy? If this figure is sustainable for the five technologies currently supported by the FiT, surely the £2.09 billion in annual government grants to the Nuclear Decommissioning Authority is not sustainable and needs considerable revision, particularly as it costs each household an average of £79, while the cost of the FiT is currently £6 per household.

**12. What would be the impact of pausing applications to FITs for new generators for a short specified period to allow the full implementation of the cost control mechanisms? Please consider the immediate and broader economic impacts and provide your reasoning.**

The uncertainty would kill a market that already struggles with policy uncertainty, it would lead to an irreversible loss of jobs and skills, as those made redundant would attempt to find new work outside the sector. Many would not return if jobs became available in the sector again due to concerns surrounding job security.

**13. What would be the impact if FITs continued as an export-only tariff for new generators on reaching the cap of £75-100m additional expenditure? Please provide your reasoning.**

It would serve no useful purpose. The export tariff offers little financial assistance to projects, it would have no impact in the financial viability of renewable energy projects. Sheffield Renewables do not export any electricity to the grid, all our electricity generated is used by the sites, so we do not collect the export tariff. Most other schemes will operate in a similar manner, exporting only a small proportion of the electricity generated back to the grid.



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**14. Do you have any views on the use of competition to prioritise applications within a system of caps? What do you think are the advantages and disadvantages of this approach? What forms of competition may be appropriate and is this different for different sorts of installations? Please provide your reasoning.**

We don't agree with any caps or competition, as we don't feel that public health, energy security and climate change is a contest. If any priority is assigned, it should be assigned to ethically-sound community groups, who bring a direct local benefit to society.

**15. Should FITs be focussed on either particular technologies or particular groups (e.g. householders)? Please provide your reasoning.**

No, but if it did it should focus on particular low carbon (truly low carbon) and also community groups. In order to meet the energy needs of the country it is essential that no truly low carbon technology is penalised. To move to a low carbon energy supply the UK needs a mix of sources, prioritised subsidies for one particular technology would seriously hamper this development.

**16. Do you agree or disagree with the proposal to remove the ability of new installations to extend their capacity under the FITs scheme? Please provide your reasoning.**

Extending capacity should definitely be allowed. This could result in cost savings for expanding renewable energy capacity as many one off costs such as cabling and grid improvements would be covered in the initial installation. It also allows for those who could not afford to exploit the full potential of a given site, such as a roof space, to do so at a future date, without the need to consider financing through expensive, potentially unaffordable loans, or never reaching full capacity.

**17. Given our intention to move to fully metered exports for all generators, do you agree with the proposal that new and existing generators should be obliged to accept the offer of a smart meter (or advanced meter) when it is made by their supplier? Please provide reasoning for your response.**

We agree with the proposal that new and existing generators should be obliged to accept the offer of a smart meter (or advanced meter) when it is made by their supplier as long as the meter is free and as long as accepting the smart meter does not tie them in to their existing supplier (i.e. they should still be able to change supplier should they so wish).



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Smart meters will enable energy suppliers to know just how much is being generated back to the grid at any time.

**18. Do you agree or disagree with the alternative proposal that new applicants must have a smart meter (or advanced meter) installed before applying to the FITs scheme, with existing generators being obliged to accept the offer of a smart meter (or advanced meter) when it is made by their supplier? Please provide reasoning for your response.**

We agree with the alternative proposal that new applicants should have a smart meter or advanced meter. We do not agree that this should be installed BEFORE applying to the FITs scheme, but it should be installed AT THE SAME TIME as the renewable energy installation, and will therefore be able to be read for FITs.

If new applicants had to have this in place BEFORE applying to the FITS scheme, their application could be delayed while waiting for it to be installed.

**19. Do you have any views on possible approaches to introducing remote reading for generation meters? Please provide reasoning for your response.**

We think that the introduction of remote reading for generation meters would be useful as long as the technology can be supplied at low cost. Our generation meters are read remotely and this seems to work OK. We use SS4meteronline. Costs have been fairly low - £40-£50 per year.

**20. Do you agree or disagree that recipients of FITs should be required to notify the relevant DNO of new installations as a condition of the scheme?**

This is a sensible measure. Most schemes already have to do this. However, costs of improvements to the network should be split between the FiT recipients and DNO. The costs to be paid by FiT recipients should also be relevant to the cost of the scheme, in order to encourage renewable energy development.

**21. Do you agree or disagree the FITs scheme should be amended to include requirements that help mitigate and limit the impact on grids such as requiring generation to be co-located with demand or storage?**

The national grid is an ageing network, in need of considerable improvements to cope with increased capacity, usage and generation demands. While FiT schemes can assist in the costs



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of improvement, they should not be solely responsible. Particularly while methods of energy storage are not currently effective and financially viable. Local generation that goes directly to local usage can help considerably to ease the strain on the grid. This local generation can only come from renewable energy sources, as these are the most feasible small scale generators. Therefore it is essential that renewable energy is financially viable and assisted by the FiT subsidy.

**22. Do you agree or disagree that the FITs scheme or wider networks regime should be amended to ensure generators pick-up the costs they impose on the network?**

No, it's difficult to quantify the 'impact' that sites have on the network. The DNO is responsible for ensuring the network can cope with capacity and as such should pick up the majority of the costs.

**We have no strong views on questions 23 to 27 or feel they are not relevant to Sheffield Renewables.**

**28. Do you agree or disagree with the proposed change to the FITs legislation to refer to specific versions of relevant MCS standards? Please provide your reasoning?**

This needs to be reviewed as the MCS promotes good practice and takes action against unscrupulous traders. We support the promotion of good practice. Good practice ensures high standards of workmanship and ensures value for money and confidence to the consumer.

**30. Do you agree or disagree with the revision being considered to increase the energy efficiency threshold to EPC band C for anyone with an installation to which the criteria apply? Please provide your reasoning.**

Theoretically the requirement to have an EPC band C or above is a good thing. However government policy has far from encouraged the supply of more energy efficient housing, with the removal of the green homes standard as just one example.

A fairer and more helpful policy to assist with the improvement of energy efficient buildings would be to allow those buildings with a lower EPC band to claim the FiT but require that after a reasonable given time period, such as 5 years, require that another EPC is submitted. This EPC must then be of a band C or higher, if the banding is not met then the FiT payments



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are stopped. This allows a means of financing energy efficiency methods through the FiT payments.

**31. Do you agree or disagree with the revision being considered to remove FiTs eligibility from anyone with an installation to which the criteria apply who does not have at least an EPC band C? Please provide your reasoning.**

This is deeply unfair and morally and potentially legally wrong. Those with existing installations have installed on the promise of receiving the FiT at the given rate for 20 years. Removing the FiT before the 20 year period is finished could lead to financial hardship for those relying on the FiT to help pay for installation. It could also lead to considerable legal challenges by those who would lose their FiT payments.

**32. Do you agree or disagree with the exceptions for community groups, schools and fuel poor households to the revision to the energy efficiency criteria being considered? Please provide your reasoning.**

We strongly agree, this is a fair measure. In our experience buildings used by community groups, schools and fuel poor households are of poor energy efficiency. FiT payments and reductions in energy bills that renewable energy installations can offer, can help considerably in financing improvements to these buildings. This is often a measure used to open up a new stream of income to cash strapped and struggling community groups, schools and fuel poor households. This offers the whole community a positive impact and improvement in community resources.



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## Concluding Remarks

Please reconsider. Cutting renewables investment is a vote loser and will be a very significant setback for the sector, the future prosperity of this country and its reputation on the global stage. Since the announcement of this Review at least four major solar businesses have closed in the UK. This has cost approximately 1,000 jobs. SolarCity who own Zep Solar UK and the Chief Executive of Southern Solar both blamed the government for not supporting the technology by cutting solar subsidies.

Sonia Dunlop, spokesperson for the Solar Trade Association has said: *'The industry already had a plan to wean itself off subsidies between 2020 and 2025, but the caveat was that we needed a stable policy framework to get us there. It's about energy independence and investment in cheaper energy over 20 – 30 years.'*

Renewable energy generation in the UK has great momentum, please encourage it further by working with Sheffield Renewables so that we can continue with our ambitious and community-benefiting schemes.

We propose that at the very least, you continue to keep funding available for community organisations, to enable them to carry on their exceptional work, allowing them to set up larger, high profile and more publicly visible schemes.

### To summarise our main answers to this consultation:

- We strongly disagree with the proposed reduction, or complete removal for the Feed-in Tariff.
- We dispute the validity of the Parsons Brinckerhoff report that DECC have used to help form their proposed revisions of the Feed-in Tariff, with many of the figures stated in the report being unrepresentative of each technology and fundamentally incorrect.
- We completely disagree that spending of the Feed-in Tariff is unsustainable, It is unsustainable to risk so many jobs and investment, and will cost the government more in the long run. The FiT is a tiny expenditure considering that it secures tens of thousands of jobs and supports community schemes, such as those developed by Sheffield Renewables. The cost of climate change will be astronomical in comparison to the small investment required to help combat it, saving trillions of pounds in the future.
- We do not agree with the proposed degression pathways or caps, they are unfair and not evidence based. They will only hamper the industry's move to a subsidy free state.



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