

Response to the call for evidence on The Future for Small-Scale Low Carbon Generation

Introduction

The last decade has brought seismic shifts to the energy sector; an urgent need for a low carbon future and leaps forward in technology that enables decarbonisation have led to the energy system becoming increasingly decentralised. These changes mirror similar shifts seen in many other parts of the economy and puts the energy sector at the forefront of innovative, democratised change.

Regen

Regen is an independent, not-for-profit centre of expertise on sustainable energy, with frontline experience of working in the renewable energy sector. As a membership organisation, we inform our response from our 200 business, local authority and community energy members that support our mission to transform the energy system. We have extensive experience of guiding the sector through shifts in the energy system over the last decade and influencing change at the heart of government. Our experience is also drawn from our work on innovation projects such as a [local demand side response trial in Cornwall](#) and a [vehicle to grid trial on the Isle of Lewis](#) and in-depth advisory work for utility companies and public bodies such as the Welsh Government.

Success of schemes like the Feed-in Tariff (FIT) have precipitated economic growth of renewables

Backed by the FIT scheme, small-scale renewables are taking an increasing role in the evolution of the energy system and the sector has huge potential for further growth, with a groundswell of support from businesses, communities and the general public. Renewables have proven their economic worth, bringing 129,000 jobs to the UK and a value of £17.6bn to the UK economy¹. At its peak in 2014, over 10,000 companies were participating in the UK microgeneration market².

Small-scale renewables have proven their value beyond economic gains

- **Small-scale renewables bring value to the energy system.** As we move to a smarter system with new technology (smart meters, enhanced data, better management platforms), small-scale generation will be able to interact with networks in a flexible, efficient way to provide benefits and cost reductions. Balancing local supply and demand is made possible by local, small-scale generation and benefits the system through reduced infrastructure costs. A report we contributed to for Western Power Distribution found that savings of £1m could be made if 10% of end-users used local matching³. Further expansion of local generation will help to reduce demand, particularly as we see an increase in electric vehicles and domestic heat pumps. Recent government policy laid out in the Industrial Strategy and more detailed plans, paves the way for small-scale renewables and smart systems to interact and play a key role in decentralisation and flexibility.

¹http://www.r-e-a.net/upload/final_low_res_renewable_energy_view_-_review_2017.pdf

²Microgeneration Certification scheme installer statistics <https://www.microgenerationcertification.org/wp-content/uploads/2018/08/Installer-stats-July-2018.xlsx>

³ Local Grid Charging, Western Power Distribution <https://www.westernpower.co.uk/docs/Innovation/Other/open-utility-local-grid-charging-white-paper.aspx>

- **Small-scale renewable generation is becoming cost competitive.** At the larger end of the small-scale sector, generation projects are competitive with other forms of generation (renewables and other) that receive support through Contracts for Difference and other mechanisms. Our analysis is that 5MW solar farms could provide power at competitive rates, but will continue to require a price guarantee mechanism to enable low cost investment in the initial capital costs. The National Infrastructure Commission’s 2018 report reinforces this point, with analysis that shows that a system based on renewables will cost no more than one based on nuclear – and this is without considering the pace of continued falls in the cost of renewables; reductions which are not predicted for nuclear⁴.
- **Interest in decentralised renewables is increasing.** 62% of people would like to have solar panels installed in their homes and two-thirds are in favour of the energy market, dominated by the big six, opening up to smaller, locally owned energy systems⁵. Local energy generation has enabled people to engage in and embrace the transition to a low carbon future – being an active participant in energy generation has shown them the advantages of producing low carbon energy and given them ownership over that transition. It has encouraged households to think more carefully about their energy usage and efficiency. However, many households and small businesses are unable to take advantage of this opportunity due to barriers in costs resulting from reductions in revenue support.
- **Community and locally owned schemes have flourished.** Community energy schemes across the UK total 249MW of capacity and Local Enterprise Partnerships are increasingly looking to local energy generation as part their energy strategy to reduce bills and increase jobs and investment. Devolved administrations have a high level of ambition; the Scottish Government want 50% of new renewable projects to have an element of shared ownership⁶, while the Welsh Government are aiming for 100%⁷.
- **Microgeneration has an important role in meeting carbon budgets.** Looking to the future, small-scale renewables are forecast to play a vital role in meeting the UK’s national and international carbon targets. National Grid’s Future Energy Scenarios predict that, in order to meet 2050 carbon reduction targets, microgeneration will make up a minimum of nearly one-fifth of total generation, and in one scenario almost a third, putting it on an equal footing with large-scale generation⁸.

What is the future of small-scale generation?

The policy of successive governments to support the sector through the FIT has been hugely

⁴National Infrastructure Assessment 2018, Chapter 2; Low Cost, Low Carbon. https://www.nic.org.uk/wp-content/uploads/CCS001_CCS0618917350-001_NIC-NIA_Accessible.pdf#page=33

⁵Client Earth Climate Snapshot 2018 <https://www.documents.clientearth.org/wp-content/uploads/library/2018-08-20-clientearths-climate-snapshot-coll-en.pdf>


⁶Scottish Government: Scottish Energy Strategy, Dec 2017, <https://www.gov.scot/Resource/0052/00529523.pdf>

⁷Cabinet Secretary for Environment announcement, Sept 2017 <https://gov.wales/newsroom/environmentandcountryside/2017/170928-lesley-griffiths-high-on-ambition-for-clean-energy/?lang=en>

⁸National Grid 2018 Future Energy Scenarios; Community Renewables and Two Degrees <http://fes.nationalgrid.com/fes-document/>

successful. Capacity from FIT generators now totals over 6GW with nearly 1m installations⁹ and costs have fallen far faster than expected. While these huge leaps forward in the sector are to be lauded, there are very few examples of energy generation technology (renewables, fossil fuels and nuclear) being built without some form of revenue support. It is therefore unreasonable to expect that small-scale renewables will be deployed at significant scale without at least a guaranteed export tariff. This is especially true of less well-developed technologies such as anaerobic digestion and hydro.

The closure of the FIT will effectively halt any further development of small-scale renewables. Since the announcement of closure in 2015 and subsequent reductions in FIT tariffs, deployment has fallen off a cliff, dropping from over 20,000 installations a month to just a few thousand, declining further into 2018 (see figure 1)¹⁰. Jobs in the solar industry fell by 32% from 2015-2016 and BEIS' own impact analysis shows that the closure of the FIT all but stops any further deployment, even in a high growth scenario.

A decade of change - the changing rate at which Feed-in Tariff projects are installed from 2009 to 2018 

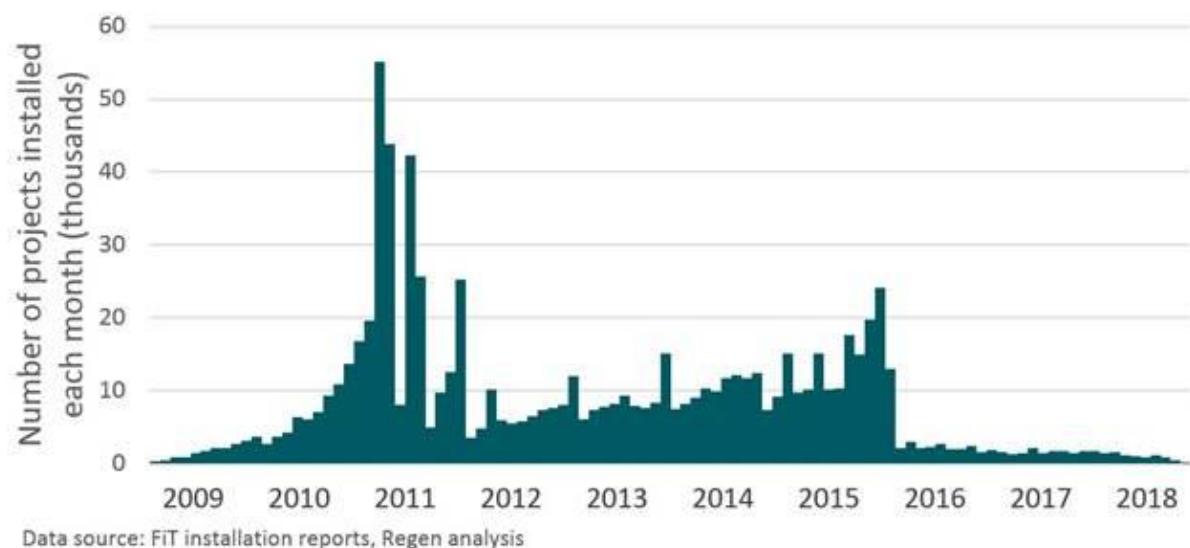


Figure 1

The sector may one day recover, independent of government revenue support, but until that point, it is imperative that government support continue through a guaranteed route to market and revenue support. Grants provide a short-term source of funding, but can only support few, individual projects on a time-limited basis, not the long-term market encouragement the sector needs. The £1/year that consumers are predicted to save following the FIT closure, according to BEIS' own projections, pales in comparison to the estimated £87 per household to cover the cost of nuclear

⁹ BEIS monthly feed-in tariff commissioned installations as at June 2018
<https://www.gov.uk/government/statistics/monthly-small-scale-renewable-deployment>

¹⁰ Regen analysis

waste alone¹¹. If a guaranteed price can be provided for nuclear or imported energy, should a UK microgenerator not benefit from the same treatment?

Summary of recommendations

If the UK wants to continue to attract billions in investment, prevent job losses and ensure we meet our carbon targets, the government needs to continue support for this sector. Therefore, we recommend that;

1. The export tariff should continue whilst an alternative is being developed.
 - 1.1. BEIS should request that Ofgem establish a clearer definition and code of conduct for marketing green tariffs to encourage an alternative market-led tariff.
2. Flexibility markets need to be made as open and simple as possible to encourage greater utilisation of renewables through small-scale aggregation, storage co-location and DSR schemes, but it should be recognised these will not provide significant revenues to small-scale generators in the short term.
3. Ensure smart meters can monitor exports to the right standard to enable small-scale renewables and storage to participate in the maximum number of markets.
4. The government should allow electricity generation to be included in Social Investment Tax Relief (SITR).
5. The charging review should support the local energy generation market by recognising where it can help reduce flows on the network.
6. A statutory requirement should be introduced for DNOs to consider Local Enterprise Partnership, City Region and devolved government's energy and decarbonisation strategies and create a clear role for regional stakeholders in the governance of DNO investment decisions.
7. Government should continue to work to improve the regulatory landscape for storage, ensuring it is treated appropriately.
8. Government should exempt small-scale renewable installations, especially those that are community owned, from business rates.

Recommendations

1. A guaranteed route to market will be needed

No realistic alternative exists to fill the gap left by the closure of the generation and export tariffs of the FIT. A guaranteed route to market is needed until an alternative is in place and until smart metering (including of exports) and half hourly settlement become embedded and create simpler routes to market.

¹¹ Based on £2.36bn of government grant-in-aid to the Nuclear Decommissioning Authority split between 27.2m households

It is suggested that power purchase agreements (PPAs) offer another option to generators, but these are difficult to negotiate, particularly for smaller generators, and long-term contracts are currently not being offered. We have had input from energy suppliers in our membership that they currently have no plans and no incentive to provide PPAs to small-scale generators to replace the export tariff – for this to be included in a supplier’s balancing mechanism settlement, the appropriate meter must be installed which is cost-prohibitive to the consumer.

This incentive is further compounded by the current skewed market for ‘green’ energy due to secondary trading of unbundled REGO (Renewable Energy Guarantees of Origin) certificates – if suppliers are able to purchase REGOs at a such a low cost, there is little incentive to buy renewable energy through PPAs with multiple small generators. Without a backstop export tariff, if suppliers do offer PPAs combined with retail contracts, prosumers may find themselves locked into bad deals with low fixed rates for export, but high fixed retail rates. PPAs are only a viable route to market for larger scale renewable generators and even then, do not provide a long-term revenue security.

Recommendation: the export tariff should continue whilst an alternative is being developed.

We understand the need for the export tariff to reflect the market price and provide a rate that is fair to consumers, but attractive to generators. We think it is possible to improve the calculation of the export to better reflect wholesale prices and potentially evolve into a smart tariff that encourages generation at system peaks. A well designed tariff could attract existing generators as well as new, further reducing the FIT cost burden. Please see our response to the FIT consultation for further evidence.

1.1 Green-washed green tariffs are undermining the market for renewable energy

Genuine green tariffs should encourage greater procurement of renewable energy. Despite growing customer demand for renewable energy, problems with the market are compounded by the practice of ‘greening’ energy supply by trading in REGOs. As well as misleading customers, energy suppliers have little need to purchase renewable energy for their green tariffs, instead purchasing cheap, unbundled REGOs which undermine the PPA market and any future export tariff market.

Ofgem have brought attention to this issue and do not believe that all green tariffs are created equally, with those backed by REGOs costing potentially £300/year less.

“We also note that suppliers can buy REGOs cheaply, so it is easy and cheap for suppliers to ‘green’ some tariffs. As such, our starting point is that simply having renewables in the portfolio is not enough to demonstrate that a tariff is providing support for renewables.”¹²

REGOs and their trading are not themselves the issue, but the marketing of cheaper, REGO-backed tariffs as ‘green’ is misleading to the customer and doesn’t provide support for renewables.

¹²Ofgem Default Tariff Cap Policy Consultation, May 2018
https://www.ofgem.gov.uk/system/files/docs/2018/05/appendix_13_-_renewable_tariff_exemption.pdf

There is a condition in the supply licence¹³ which requires suppliers to be transparent to consumers about the claims of environmental tariffs and where a claim is made, ensuring that they can demonstrate the basis of the claim.

Recommendation: BEIS should request that Ofgem establish a clearer definition and code of conduct for marketing green tariffs.

We also recommend that Ofgem follows through on its own suggestion¹¹ to consult on introducing a new rule to require suppliers to allocate the same fuel mix to all of their tariffs. For example, if the supplier's fuel mix is 20% renewable and 80% coal, then each tariff must reflect this mix (i.e. each tariff must contain 20% renewable and 80% coal). This supplier could not then say that 20% of customers are on a 100% renewable tariff and 80% are on a 100% coal tariff

This would ensure that renewable generators get a fair price for a premium product and encourage energy supply companies and businesses to buy renewable energy rather than paper trade certificates.

2. Flexibility markets need to be accessible, but are not likely to be a large source of revenue for generators

Flexibility will be critical to making our future energy system work. Flexibility markets could encourage greater investment in energy storage, which could provide an indirect benefit for renewable generators in the form of price arbitrage opportunities. There is no evidence however that flexibility markets will provide a significant direct revenue source for small-scale, non-dispatchable renewables in the near term.

Historically, neither the Capacity Market, nor National Grid's suite of ancillary/balancing services¹⁴ have involved many renewable energy generators. In addition to this, research recently undertaken for BEIS by Regen, working with Carbon Co-op and Community Energy Scotland¹⁵, suggests that emerging local flexibility markets (led by DNOs) are not likely to be a large source of revenue for renewable generators. Compared to revenue from the FIT, flexibility markets do not provide long term guarantees and revenue will likely be modest. A recent expression of interest from Western Power Distribution did not attract much interest from non-dispatchable technologies (i.e. renewable energy generation). In the research for BEIS, Regen found that small-scale renewables are unlikely to be a strong contender in local flexibility markets, but we did find that certain types of technology are likely to be more able to bid into these markets, i.e. renewables co-located with storage have a much higher chance of success.

Both the ESO and DSO flexibility markets need to be made more accessible to domestic and community storage and demand side response (DSR) schemes. Given the small scale of generation,

¹³ Ofgem supply licence conditions

<https://epr.ofgem.gov.uk//Content/Documents/Electricity%20Supply%20Standard%20Licence%20Conditions%20Consolidated%20-%20Current%20Version.pdf>

¹⁴ See National Grid Balancing Services portal: <https://www.nationalgrid.com/uk/electricity/balancing-services>

¹⁵ Conducted under BEIS Flexibility Markets Feasibility Study Competition: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/631718/Flexibility_Markets_Feasibility_Study_Competition_Guidance_-_final_draft.pdf

aggregating will play a key role in facilitating participation, so markets need to be aware and open to bids from aggregators and ensure that barriers to entry are not created through restrictive T&Cs, operating or metering requirements. The recent entrance into the Balancing Mechanism for Limejump¹⁶ and Powervault's energy storage contract with UKPN¹⁷ are good examples of how this type of aggregation can benefit the network.

We welcome the recent consultation on the future of the Capacity Market (CM) and BEIS' proposal to widen market access for renewables, storage and DSR into this market. However, at first glance, the way the Capacity Market is currently structured, including the likely derating of renewables and penalties for non-delivery, make this an unlikely revenue source for small scale generators.

Recommendation: flexibility markets need to be made as open and simple as possible to encourage greater utilisation of renewables through small-scale aggregation, storage co-location and DSR schemes, but it should be recognised these will not provide significant revenues to small-scale generators in the short term.

3. Smart meter roll-out needs to improve and continue

Smart meters will be of huge benefit to decentralised technology and small-scale renewables will have better access to markets when generation can be better measured and monitored. But smart meters should have the ability to meter exports to the right standard – rolling out meters that do not meet required codes can prohibit small-scale generation from entering particular markets.

As mentioned in point 1, one example of this is the high standard needed for export metering for suppliers to include this generation in their balancing settlement. The cost of providing the compliant meters is generally prohibitive to small-scale generators. Smart meters can overcome these problems, but only if they are designed in a way that meets all market requirements.

Recommendation: ensure smart meters can monitor exports to the right standard to enable small-scale renewables and storage to participate in maximum number of markets.

4. Investment in community energy schemes should be encouraged through tax relief

Community energy schemes are a key way of engaging local people in the transition to low carbon and generation projects can provide energy security to schools, hospitals and social housing as well as bringing jobs and investment to the local area.

Whilst community energy projects were receiving subsidies through FIT and other schemes, they were exempt from Social Investment Tax Relief (SITR), Seed Enterprise Investment Scheme and Enterprise Investment Scheme.

Recommendation: given the closure of the FIT and the high risk involved in many community energy projects, the government should allow electricity generation to be included in SITR.

¹⁶ See Limejump article: <http://www.limejump.com/limejump-enters-balancing-market/>

¹⁷ <https://www.powervault.co.uk/article/powervault-to-deliver-local-flexibility-in-london-with-ukpn/>

5. The charging review needs to support local markets and improve grid access

The ‘network access and forward-looking charging’ review from Ofgem is suggesting a move towards a shallow connection charging model. We support this move as it would help to overcome barriers for small-scale generation accessing the grid – we have seen queues to access the network in constrained areas and we welcome efforts to overcome these barriers to connection.

However, it is vital that changes made to the access and charging regime through this review do not create new barriers for small-scale generation. Balancing at a local level can provide value to the DNO through deferring or avoiding network infrastructure investment – these savings can then be passed on to generators or consumers through reduced charges. The charging review should recognise these potential savings from linking up local supply and demand and ensure that charges are distributed fairly.

Recommendation: the charging review should support the local energy generation market by recognising where it can help reduce flows on the network.

6. Governance of grid investment needs to improve

Value for money and cost effectiveness is the key priority for network planning and investment appraisal. However, the grid and distribution networks serve a public good which, as well as delivering energy to network customers, are also expected to support wider societal objectives. DNOs are being asked to ensure that future network planning supports a range of wider economic and societal objectives, including the need to;

- improve customer service and value for money;
- demonstrate support for, and align with, local economic and development plans;
- support communities and issues such as fuel poverty and vulnerable customers;
- consider and support the development of new markets (e.g. flexibility, local energy supply) and support new market entrants;
- work with and support increasing levels of regional devolution including work of devolved governments, Local Enterprise Partnerships and city regions.

If these wide-reaching aims are to be achieved, they must be considered at all levels of grid governance and investment – for example, the current charging review must be mindful of these aims and ensure that any recommendations support them. It may also be necessary to mandate some of these objectives across governance processes to ensure they are achieved.

Recommendation: a statutory requirement should be introduced for DNOs to consider Local Enterprise Partnership, city region and devolved governments’ energy and decarbonisation strategies and create a clear role for regional stakeholders in the governance of DNO investment decisions.

7. Approach to storage needs to be improved

Storage is an important complement to renewable generation and can help maximise the value of the electricity it produces. Storage can provide standalone services to the network, but it is

increasingly being used alongside generation and aggregators are providing a route for small-scale storage and generation.

However, the current understanding and treatment of storage is preventing storage and aggregators from getting full benefit from the markets. Legal and procedural treatment of storage results in confusion and unequal handling of planning, network charging and business rates, particularly when co-location is involved. Rating of storage is a challenge given the wide variety of duration and discharge rates across different technologies, but it is important that storage be rated fairly and its rapid response be given the value it deserves in the markets.

We welcome the increased interest by government in storage, particularly through the Smart Systems and Flexibility Plan and current work to remove some of the barriers that prohibit storage from being used successfully either as standalone technology, or as part of multi-disciplinary projects.

Recommendation: government should continue to work to improve the regulatory landscape for storage, ensuring it is treated appropriately.

8. Business rates are an additional burden to renewables

Recent changes to the method for calculating business rates have resulted in hugely increased costs for small-scale installations that are primarily used for self-consumption.

Under these new calculations, rates for self-consumption solar installations have gone up by 6-8 times and rates for schools, hospitals and defence premises by 3-4 times¹⁸. For example, a solar installation of 100kW would see annual rates increase from £800 to £5,500. However, installations that mainly export to the grid and earn money from their generation have not seen a significant increase in rates.

Without a guaranteed income from the FIT and with high increases in business rates, the business case for installing small-scale solar is almost non-existent. Relief is urgently needed in order for the industry to continue.

Similar increases to business rates have been experienced by other renewable technologies; hydro installations have seen increases of 500-700% since the rate increase in 2017¹⁹ and businesses are similarly affected.

Recommendation: government should exempt small-scale renewable installations, especially those that are community owned, from business rates.

¹⁸ Solar Trade Association Minimising business rates impact for rooftop solar installations in England and Wales. <https://www.solar-trade.org.uk/wp-content/uploads/2017/06/SPV-toolkit-v2.8-for-the-website.pdf>

¹⁹ <http://www.british-hydro.org/bha-chief-claims-business-rates-system-is-fundamentally-flawed/>