1. **Do you agree or disagree with the proposed AD and/or mCHP generation tariff rates? Please provide reasons to support your answer.**

We are not requesting an increase in the generation tariff rate for mCHP as we believe that it is more critical to the future of the industry that the support is retained for the 30,000 units. The UK Government must provide positive signals to maintain market confidence for commercial offerings that meet all aspects of the energy trilemma.

4. **Do you agree or disagree with the proposal to set the deployment cap for mCHP at 3.6 MW to March 2019? Do you agree or disagree with the proposed annual caps for mCHP? Please provide your reasoning, supported by appropriate evidence where possible, including information about investment or contracts in place before the date of this consultation that may be affected by the proposal.**

Summary

We disagree with the proposal to set the deployment cap for mCHP to 3.6MW to March 2019 and with the proposed annual caps for mCHP. We are concerned that the proposed caps, which would reduce support from 30,000 mCHP applications to just 3,510[1] will seriously damage the UK's prospects of competing in this emerging industry. This is a significant change from what was previously set out in the Government's feed-in tariff consultation and we would like Government to continue to support the first 30,000 mCHP installations in order to maintain market confidence and secure the future of this technology in the UK.

Recommendation

Initial policy support is key for mCHP and we urge the Government to continue to support the first 30,000 units. This support will enable cost reductions during the period over which cost down potential is steep. It will allows DECC to capitalise on investment that has taken place already in the UK and ensure that the benefits of mCHP to the UK economy and energy system are realised.

The mCHP industry would also like to work with DECC to develop policy support and regulatory structures beyond 2019 that will allow the technology to be competitive in the market and order to ensure that the benefits of the technology are fully realised in the UK.

Impact on investment in the UK

In February 2010, the Government established the Feed in Tariff (FIT) scheme to "support the first 30,000 micro combined heat and power (mCHP) installations", a family of technologies that allows consumers to generate heat and electricity at home. DECC stated then that "we believe this funding

[1] https://www.gov.uk/government/consultations/review-of-support-for-anaerobic-digestion-and-micro-combined-heat-and-power-under-the-feed-in-tariffs-scheme

provides certainty for the industry and allows us to provide initial support for an industry that will help deliver carbon savings for the UK."

This commitment was restated in the subsequent FIT consultation in 2012 when DECC indicated that 30,000 was not to be considered a cap and was the minimum number that would be supported under the scheme.

"However, we want to give greater certainty to investors and to take account of the outcomes of the Heat Strategy. We therefore want to clarify that the review following the installation of the first 12,000 units will be focussed on the level and means of Government support for microCHP once 30,000 units have been installed"[2]

Greg Barker, also indicated that 30,000 units was the minimum number that the Government would support in a Westminster Hall debate on mCHP

"That is why we have a sensible cap at 30,000 units. But let me be clear, the feed-in tariff would go beyond that 30,000. I think that is meant to signal a limit in terms of a sensible budgetary constraint on being able to subsidise at that higher level that number of units. I certainly anticipate a long-term future for the feed-in tariff for micro-CHP"

In the August 2015 it was reiterated that 30,000 units would be supported and that this would not be reviewed until 12,000 units had been installed.

"We do not propose to change policy around micro CHP, because there has been insufficient deployment to justify a review of this area and there is not therefore a sufficiently broad set of data on which to base tariff changes. We propose that the existing cap on installations remains in place, along with the trigger of 12,000 installations for a review of tariff and deployment levels."[3]

As a result of this certainty provided by the Government, we have been investing in this technology and developed business plans based on the committed support for 30,000 mCHP units. Since 2010 we have invested a combined total in excess of £180 million to develop this technology and set up assembly lines and supply chains based in the UK to deliver the target volumes. We are currently employing a combined total in excess of 200 people who are directly working on developing and supporting this technology. There are many additional jobs created by the manufacturing of our products. There has also been £8 million of inward investment by companies into the UK.

The proposed deployment cap in the recent consultation would effectively result in an 88% reduction in the 30,000 units which Government previously committed to support. These volumes will make further investment in mCHP very difficult and will not allow for the commercialisation needed to ensure this technology can, in time, operate without subsidy.

With Germany, Japan and Korea already deploying 100,000s of mCHP units, the potential for the UK market is significant. These countries recognise the enormous energy system support that CHP brings to the residential, commercial and industrial areas of their countries and their economies and the value that it brings in meeting their emission targets. The proposed changes risk mCHP investment going elsewhere, outside of the UK.

Benefits of mCHP

[2] Feed in Tariff Review Phase 2012

[3] Consultation on a review of the Feed-in Tariffs scheme August 2015

1. ***Cost effective pathway to carbon reductions***

We support Government's focus on affordability and ensuring consumers are protected from additional costs on their bills and we believe mCHP is a cost-effective technology, which has the potential to have a significant positive impact on Government's aim to deliver secure, clean and affordable energy.

As can be seen from Figure 1, mCHP compares favourably with other technologies and offers value for money when subsidy carbon abatement cost is considered. We also expect the subsidy abatement cost of mCHP to decrease as more mCHP are installed and generation tariff payments are phased-out; this is expected to happen much faster compared to solar PV based on the Japanese experience curve[4].

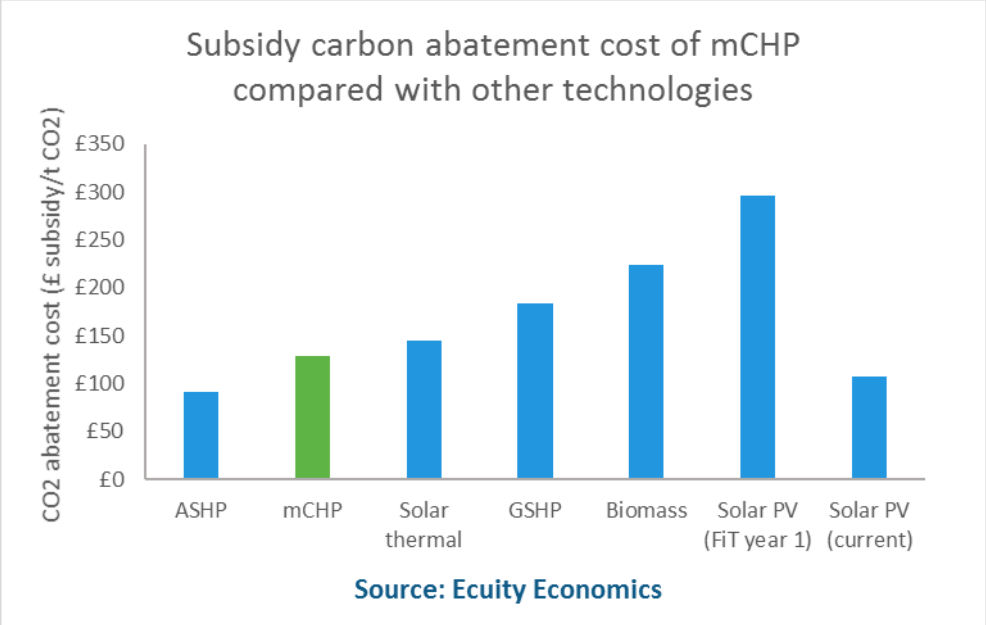

Figure 1 – Value for money of mCHP

2. ***Supports renewables by generating during peak demand***

mCHP delivers many benefits to the wider energy system[5] and supports other low carbon distributed generation technologies such as solar PV and wind. By generating power at the point of use and typically at times of peak demand, mCHP reduces the strain on transmission and distribution systems, deferring the need for infrastructure upgrades and displacing high carbon emitting power plants. This generates cost reductions and economic gains in different parts of the electricity supply chain. Consequently the electricity generated by mCHP has inherently higher value than that generated by other technologies supported under FITs however this value is not captured under current market arrangements and is socialised. This benefit has been estimated at 7.7p/kWh electricity generated, assuming widespread mCHP deployment as can be seen in Figure 2.

[4] https://spiral.imperial.ac.uk/bitstream/10044/1/9844/9/Staffell%20%20Green%202012%20-%20The%20cost%20of%20fuel%20cell%20micro-CHP.pdf

[5] See for reference: 'The role of micro CHP in a smart energy world', http://www.ecuity.com/wp-content/uploads/2013/03/The-role-of-micro-CHP-in-a-smart-energy-world.pdf

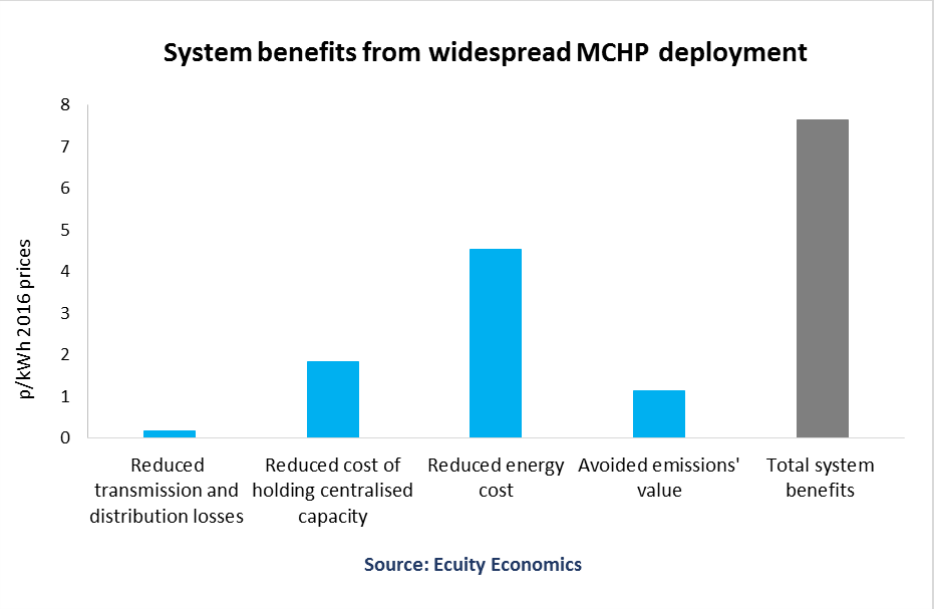

Figure 2 – System benefits of mCHP

The Grid Emission Factor (GEF) used in the calculations that informed Figure 2 was calculated using the methodology taken from British Gas research on assigning Grid Emission Factors to GB electricity supply.

3. Meeting key objectives of the FITs scheme

mCHP is the most cost-effective gas-fuelled domestic heating solution which meets all the key original objectives of the FIT scheme including 1) empowering people and giving them a direct stake in the transition to a low-carbon economy; 2) assisting the public take-up of carbon reduction measures; 3) fostering behavioural change; and 4) helping develop local supply chains and drive down energy costs.

4. UK based knowledge industry and jobs with export potential

Unlike other technologies that have received strong support under the FIT scheme, the mCHP industry has a strong base in the UK with companies having invested in domestic manufacturing lines. The technology has the potential to deliver not only carbon savings but also a knowledge based industry in the UK that provides highly skilled technical jobs and export potential. In order to realise this export potential, the UK Government must support mCHP to deploy within the UK market and achieve the cost down needed to make the technology competitive.

5. mCHP contributes to the decarbonisation of heat and building efficiency targets

Heat accounts for around 45% of our energy consumption and a third of all carbon emissions, however whilst the UK is making great progress in decarbonising electricity, DECC have acknowledged that the decarbonisation of heat is still a challenge. mCHP has a key role to play in addressing the challenge of decarbonising the heat sector as it produces low carbon heat. The Committee on Climate Change identify that the focus on solar PV and fabric efficiency at the expense of low carbon heating is an ineffective strategy for decarbonising heat. The investment in low carbon heat is of higher strategic value than the investment in solar PV.

"Neither the current Part L building regulations, nor any proposed future regulations, are well designed to support low-carbon heat measures, because solar PV and low-carbon heat are treated as substitutes - and solar PV, together with fabric efficiency, is more cost-effective. This is a problem because low-carbon heat is more important at a building-scale than solar PV: whilst there are other options for decarbonising electricity, heat decarbonisation must occur at the building- or local-scale."[6]

The challenge of decarbonising heat is particularly prominent in off-grid areas where fuels with higher carbon contents, such as oil are the only options available for domestic heating purposes. mCHP systems are an excellent option for off-grid properties and can be operated using the same infrastructure and consumer behaviour as a typical gas or oil boiler.

In addition, the building directive forces housing associations to increase efficiency of the buildings however it is expected that most buildings will not reach the targets by the end of this year. mCHP is a very attractive technology to increase building efficiency that is fast to implement and has low impact on building and tenants.

Cost down potential

mCHP has seen slow deployment rates to date, partly due to the difficulties in overcoming red-tape and getting accreditation, however mCHP is now in a position to commercialise. Technology availability is greater with more companies and products entering the market. Products are offering higher efficiencies and carbon savings.

mCHP has significant cost down potential which compares favourably to other subsidised technologies. An illustrative comparison with heat pumps is shown in Figure 3.

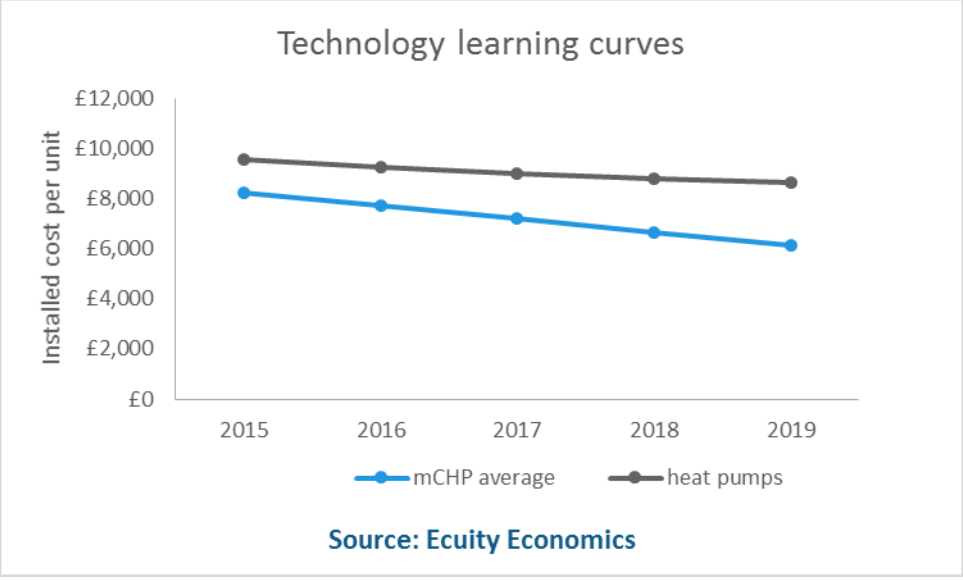

Figure 3 – Learning curve of mCHP and heat pumps

[6] Meeting Carbon Budgets – 2016 Progress Report to Parliament, Committee on Climate Change June 2016

It is estimated that the cost down potential of mCHP ranges from 11% to 39%, with an average of 23% cost down across the mCHP unit types. Cost down potential from now to end of the FIT period is shown in Figure 4.

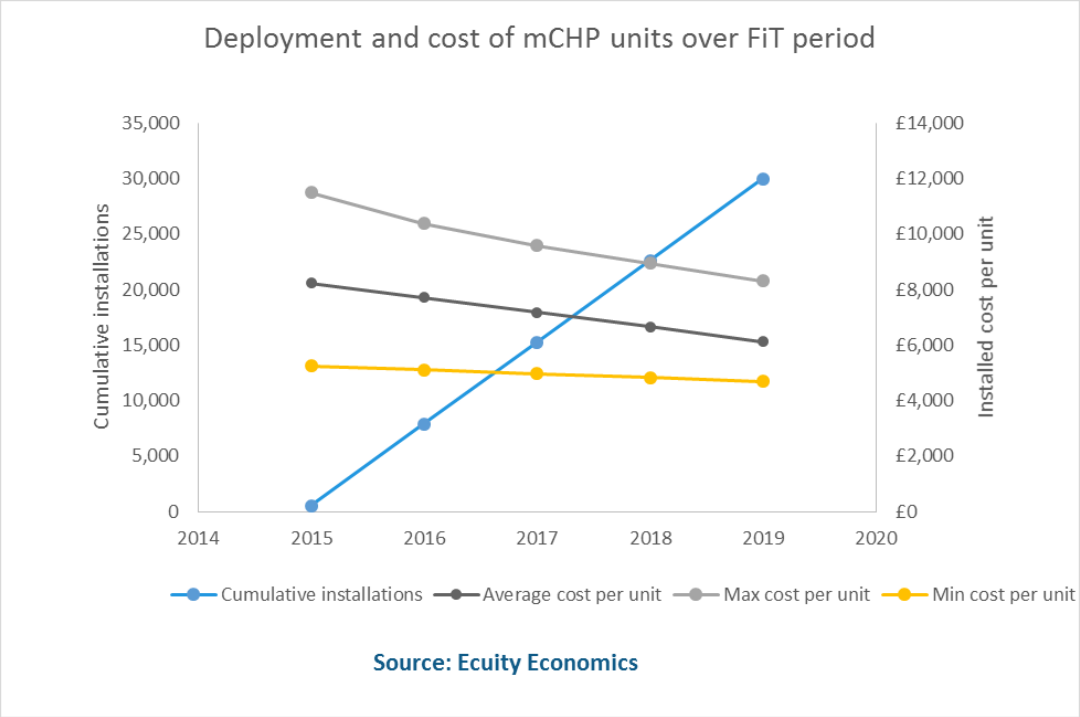

Figure 4 – Cost down potential of mCHP over FIT period

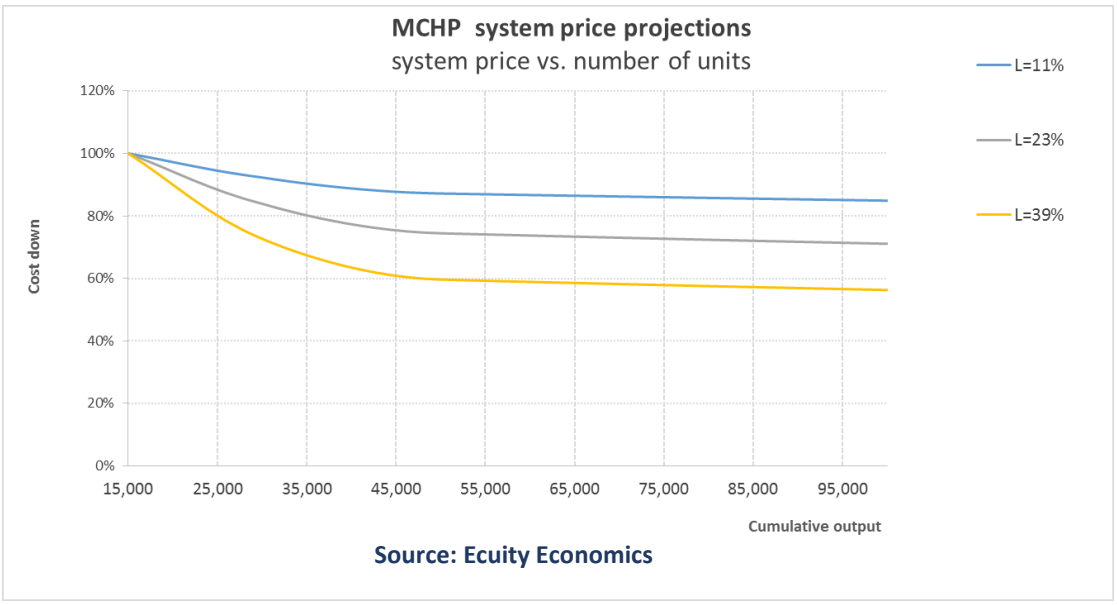

Figure 5 – Cost down potential of mCHP

Figure 5 shows that the steepest cost reduction can be achieved over the first 30,000 units. Therefore it is crucial that policy supports the technology during this period.

As can be seen from Figure 4 mCHP requires further policy support beyond FITs in order to realise the benefits of this technology which as previously discussed are currently socialised. We would

welcome an opportunity to work with DECC on the development of future policy support to bridge the gap between the end of FITs and the point at which mCHP is commercially viable without subsidy.

In the future, time of use tariffs and half hourly settlements will play a key role in the move towards viability as mCHP generates during peak times. The introduction of these measurements is dependent on the roll out of smart meters. Ecuity have carried out economic analysis of the System Main Price i.e. the price paid by the grid operator to balance the energy system on a half-hourly basis and established that this increased by up to 28% during winter peak (between 2010 and 2014) which is when mCHP would tend to operate.

Analysis of FITs and RHI budgets

The Government's response to the 2015 FITs Review stated that the scheme would support a "maximum of £100 million a year for new installations by April 2019 from February 2016 divided between technologies"[7] DECC are now proposing that mCHP be brought inside this £100 million a year budget using the underspend on other technologies.

In the consultation document DECC state that the Government is concerned that should deployment of mCHP accelerate, the cost of nearly 30,000 installations would present an additional pressure – up to £15m a year - on the Levy Control Framework (LCF).

Ecuity Consulting have analysed the cost of deploying 30,000 mCHP following a standard forecasting model and have calculated that mCHP is likely to add £6m per year to the LCF, assuming the units are all deployed from now to 2019. This is shown in Figure 6.

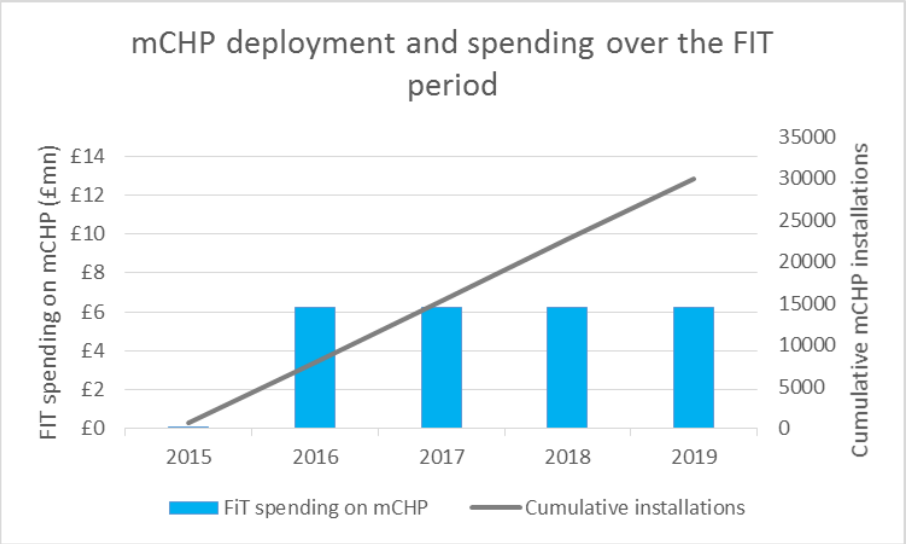

Figure 6 – Cost of mCHP subsidy for 30,000 units

However, we believe that this £6m per year can be funded using existing funds supporting low carbon technologies. Given a reduced rate of deployment following changes to the FiT scheme for solar PV in particular, we expect this slowdown to reduce budgetary pressure and indeed provide scope for underspend. The figures below provide both a simple linear projection of cumulative deployment given 2016 rates, and an initial impression of the impact on the FiT scheme budget. This

[7] Review of the Feed in Tarriffs scheme – Government response December 2015

analysis suggests that if low deployment rates continue (for solar PV in particular following the reduction in the tariff), the underspend on other technologies would be sufficient to fund the additional £6m per year needed to support mCHP deployment.

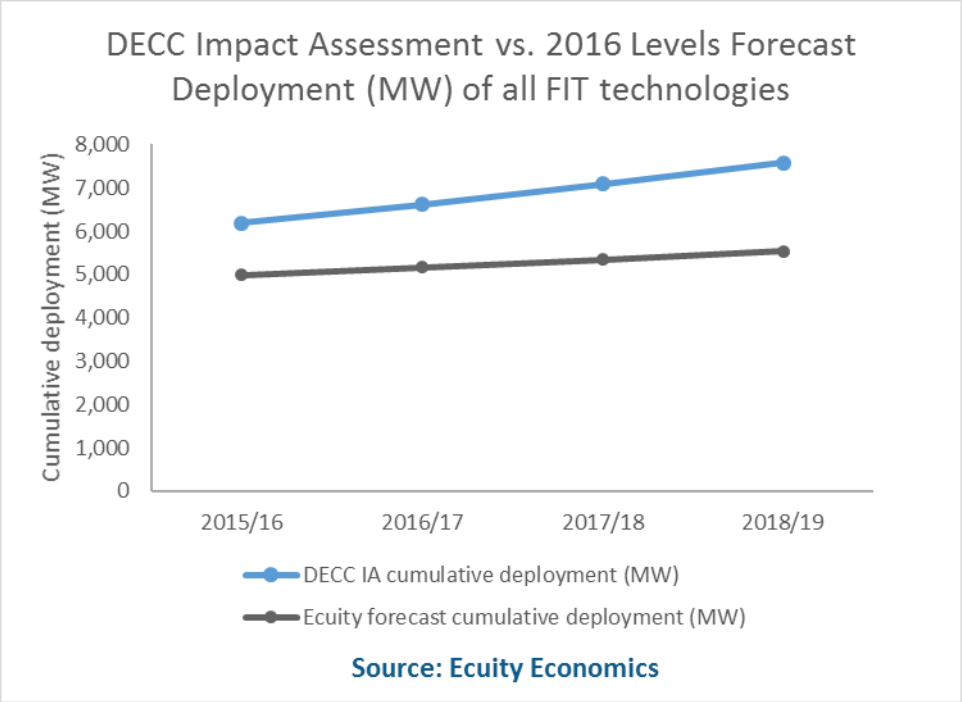

Figure 7 – Deployment forecast of FITs technologies

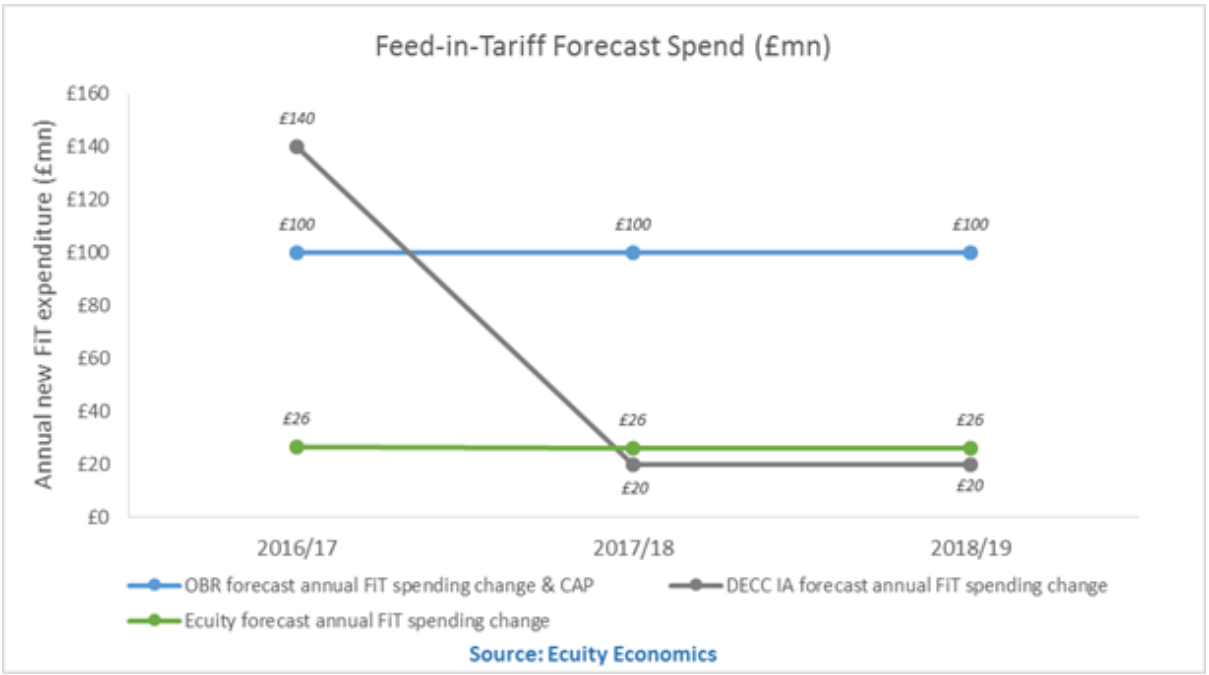

Figure 8 – Feed in tariff underspend forecast

In addition there is currently an underspend of Renewable Heat Incentive (RHI) budget – as demonstrated in Figure 8, with £100 million of underspend projected for 2015/2016. Given that

mCHP is included in the list of approved technologies in the original RHI primary legislation (Energy Act 2008), there is scope to consider how DECC can make best use of this these funds to support mCHP deployment.

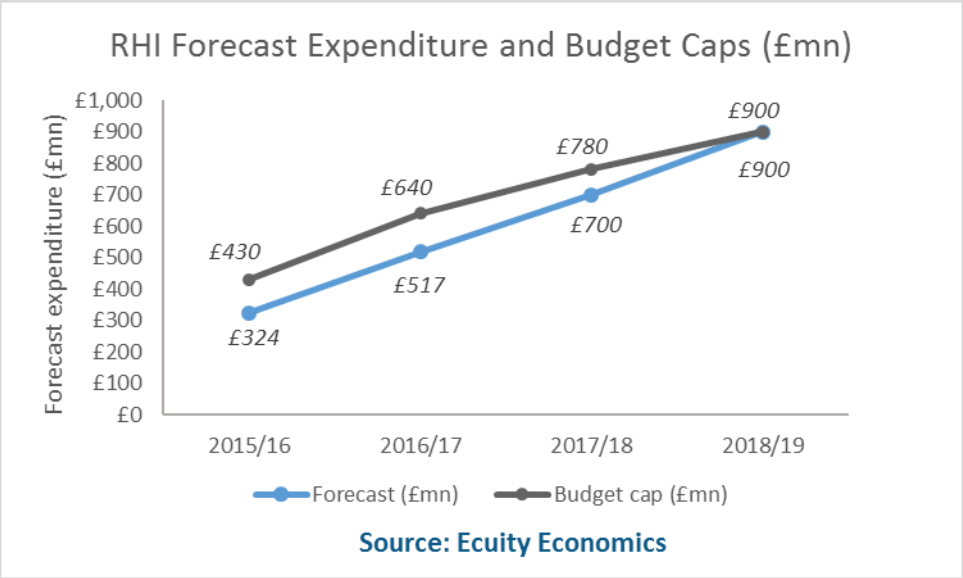

Figure 9 – RHI underspend forecast

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5. **Do you agree or disagree with the proposal for contingent degression for mCHP? Please provide your reasoning, and please fill out the evidence survey provided as part of the consultation and include documented evidence, such as invoices and/or contractual agreements to support this evidence**

We disagree with the introduction of annual MW caps and therefore a contingent degression would be inappropriate. We believe that the benefits of mCHP outlined in our answer to Q4 indicate that the Government should continue to support the first 30,000 units and look at ways of signalling ongoing support to the mCHP market to improve investor confidence in the UK market.