

# Is there a route to a UK Feed in Tariff for renewable energy?

ICEPT Discussion Paper

October 2010

Ref: ICEPT/WP/2010/004

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## Introduction

This discussion paper is concerned with the potential to change the way the UK provides support for renewable energy. It takes as context Britain's ongoing process of wider energy market reform. In particular it asks whether the UK could and should replace the Renewables Obligation (RO) with a system of feed in tariffs (FiTs) for renewable energy. The paper suggests that FiTs have advantages, that delays associated with implementation could be minimised and that FiTs have excellent potential to be integrated into a more expansive package of support for low carbon generation.

It considers the following issues:

- Rationale: Why revisit the RO vs FiT debate?
- The history and theory of the RO: economic elegance, limited success
- Theory and reality: The success of fixed price schemes and the problems with certificate trading schemes
- The case against change: why retain the RO?
- A third way: the case for auctions?
- A route forward: Structuring change to minimise investor risk and delay

This paper is focused on the mechanisms for providing renewable energy with financial support, not the wider policy environment. However, it is important not to 'blame' the RO when impediments such as planning and grid connection have seriously hindered progress, or make a simplistic claim that a FiT would overcome all the UK's problems. Reassessment of the primary support scheme for renewables is not likely to improve delivery of renewable energy if substantial impediments to progress are not addressed as well. Grid access and planning are considered in more depth elsewhere (see e.g. (Gross & Heptonstall 2010)). However the design of the support mechanism can have a profound impact on the attractiveness to investors, hence cost of capital and costs to consumers. It can also affect accessibility for small investors, including communities living close to renewable schemes. For this reason, the paper touches briefly on the link between planning and the design of market incentives.

The issues discussed herein are set within a rapidly changing policy context. The timelines for evidence based academic analysis do not align well with the current pace of policy change. Nevertheless, academic review can help elucidate many of the main issues. This paper is intended to stimulate discussion and debate, and seeks to develop propositions and identify issues where additional analysis could add value.

## Rationale and context

At the time the RO was created in 2002 renewable energy occupied a very small niche in the UK electricity market and aspirations were for just 10% of electricity

by 2010. Contemporary aspirations are much larger and as a result it is much more important that policies offer cost effective access to capital (which is affected by policy risk, see (Gross, Blyth, & Heptonstall 2010)) and good value for consumers. It is also important to encourage a wide diversity of options in order to create as many routes to long term decarbonisation as possible. Finally, both the 2020 targets and trajectory to 2030 and beyond require strong progress with renewable energy in the current decade.

As Britain considers how to reform its electricity markets the policy context for change to the RO has itself changed. Arguments related to the delays inherent in policy review carried weight when changing the RO was being considered in isolation. But are they quite as convincing when wholesale reform is already under way? It is also important to get timescales and priorities in the right order. Much of the recent debate around UK renewable energy policy focuses on the UK's target under the EU Renewables Directive (see e.g. House of Lords 2008a). However Britain is also committed to a long term target for carbon abatement, a policy with near universal political support. Numerous analyses suggest that this is likely to require decarbonisation of the electricity sector during the 2020s and that renewable energy is likely to have an important role in doing so (CCC 2009; DECC 2009b; UKERC 2009).

The potential for changing the RO to delay investment and impede progress toward our 2020 targets is undeniable. As explained below, this may not be impossible to remediate. But reform to renewables policy is also part and parcel of a longer term decarbonisation pathway and it is important to be clear about which time horizon has primacy. It would be seem strange to reform the electricity market with a view to the changes needed out to 2030 (and beyond) yet adhere to a sub-optimal policy for renewables solely because of short term concerns about delays and progress to near term targets. It is therefore important to assess whether the RO and a FiT are consistent with the wider changes being debated with respect to market reform. How would each fit in with a wider low carbon obligation, or system of long term contracts for low carbon generation?

This paper therefore sets out to investigate the cases both for and against change to the RO, in the light of historical experience, and asks whether the current context fundamentally changes the case against change.

## **The RO – the economic elegance, limited success**

When the New Electricity Trading Arrangements (NETA) came into operation in April 2001 policymakers created a new form of policy support in Britain; the Renewables Obligation. The RO took the form of an obligation on suppliers with compliance demonstrated through a tradable certificate scheme, described in detail elsewhere (see e.g. (House of Lords 2008)). It was argued that policy should be technology neutral and that renewables generators should participate fully in the electricity market, albeit with a form of subsidy (Mitchell & Connor 2004). As noted above, initial aspirations were modest, just 10% of electricity in 2010. Less was known about the cost differentials between various technologies than is now, with a decade of experience to learn from.

Trading-based support schemes like the RO (variously described in different parts of the world as Renewable Portfolio Standards and Green Certificate Schemes) emerged in several countries in the early 2000s. Many of the arguments put forward in support of this approach were common to those advanced by

economists for conceptually similar emission trading schemes (Green 2007). The main benefit was argued to be that by setting a target but allowing the trade in green certificates (Renewable Obligation Certificates, ROCs), market mechanisms will reward innovation and deliver the lowest cost renewable generation. Moreover, it was argued that the best information about costs resides with market players not policymakers. Whilst fixed price schemes (see below for details) require policymakers to determine the appropriate level of the tariff, a green certificate scheme allows price support levels to emerge from market trades. In the early 2000s it was widely expected that schemes like the RO would come to dominate renewable energy policy (CEC 1999; Komor 2004), replacing fixed price schemes in place in several countries since the early 90s.

The RO has had some success, Britain now secures around 7% of its electricity from renewables, compared to less than three percent in 2002 (DECC 2010b). Britain has installed around 5 GW of wind power, with over 1 GW offshore. Yet relative to near neighbours and global trends the UK has performed relatively poorly. Installation rates for a range of renewable technologies in countries as diverse as the US, China, Spain, Germany and India have been much higher than the UK. Moreover, the UK's approach has been shown to be relatively expensive, paying more per unit of electricity produced by wind turbines for example than the German Feed in Tariff, despite better wind conditions (IEA 2008).

## Theory and reality: The success of fixed price schemes and the problems with certificate trading schemes

### *FiTs in reality*

Notwithstanding the theoretical benefits that they were expected to deliver, certificate trading schemes have not been widely introduced. Only seven of Europe's countries have RO type arrangements, the rest have fixed price or premium schemes, for simplicity referred to as Feed in Tariffs or FiTs (see below). FiTs feature in Brazil, Canada, China, India, Korea, and Switzerland (IEA 2008), and several countries have abandoned certificate trading in favour of fixed price schemes. In the US trading schemes are in place in several states but the Production Tax Credit available at the Federal level functions as a fixed premium, underpinning investment in renewables.

Feed-in Tariff schemes set a total fixed price per unit of electricity, premium payment schemes provide a premium to be paid to the producer on top of the market price for electricity. The latter often 'flex' around wholesale power prices, ensuring that renewables are not under rewarded when prices are low or overpaid when they are high. Typically the tariff or premium is set for 10 to 20 years; this varies by country and technology. After this period the price returns to market rates. Fixed/premium schemes do not involve any form of certificate trading and do not set a target or quota for renewables. For simplicity the FiT approach is briefly described here.

The German FiT model (Erneuerbare-Energien-Gesetz, or EEG) is a well known example. It provides renewable generators with a technology specific fixed premium per unit for a fixed period of time. More expensive options receive a higher premium than cheaper options. For example, Germany and Spain have had generous support for solar PV (IEA 2008), and Portugal has a dedicated tariff for wave power (EC 2009). Each year the premium given to new developments is altered to reflect technological improvements, with progressive reductions (regressions) being the norm. The premium available to onshore wind power is

now relatively modest in many countries, reflecting the cost reductions secured since the early 1990s.

The way most FiTs work is that regional or national electricity companies are obligated to buy electricity from renewable generators (subject to technical and safety constraints) at premium rates set by the government or regulator. Generally FiTs therefore offer a combination of guaranteed power purchase, some form of priority access to grid (though in Spain wind farms are now subject to centralised dispatch) as well as fixed prices for power generated. Recent analysis by the EU Commission (CEC 2008) finds that fixed price systems often score highly in terms of effectiveness when compared to trading schemes like the RO. The Commission also finds that for onshore wind the premium paid over and above cost of generation is lower under Feed in Tariffs than under RO type schemes. Similarly, a 2008 review of OECD countries finds that fixed price schemes are more effective at delivering renewable capacity and do so in a more cost effective fashion (IEA 2008). Investment analysts also argue in favour of FiTs, on the basis that they offer a more attractive environment for investment in technologies still perceived as relatively risky (Deutsche Bank 2009).

Fixed price schemes provide investors with security of income (provided the technologies perform as expected), which allows them to finance their developments at lower cost and permits the engagement of smaller investors. Moreover, differentiation by technology is straightforward, which allows countries to target support according to the technological maturity of each technology and adjust support as technologies improve. Feed in Tariffs are also simpler in operation than RO type schemes, which (together with the secure revenue stream they create) helps explain the substantial involvement of small investors in renewable energy in countries such as Denmark and Germany.

This paper is not focused upon planning issues. However, there is good evidence that policy design and stakeholder engagement are intimately interrelated (for an overview see Gross and Heptonstall, 2010). One way to think about the planning-incentive linkage is that during the 1990s Denmark, Germany and others created (perhaps fortuitously) a 'supporting public' for wind power and other renewables. With local investors involved and local farmers, workers and others benefitting a strong constituency with a stakeholding in renewables emerged. In contrast, the same period in the UK created an 'opposing public' alone. Vociferous opposition to wind farms is now the norm in rural areas. The challenge for UK policy is to counteract this legacy issue. A feed in tariff accessible to medium sized wind farms offers the prospects of greater community ownership and engagement, given appropriate financial structures. This may not deliver vast volumes of capacity, but it could create a 'supporting public' along German or Danish lines. Further research could investigate this proposition more thoroughly. There is a good case *prima facie*, that extending FiTs from micro to community owner scale developments could assist with community engagement and planning problems.

### ***The RO in practice***

It is interesting to consider why despite its *economic elegance* the RO is less effective than the crude practice of setting a fixed premium for renewables. There are two primary reasons: Firstly, in marked contrast to fixed prices, the RO creates uncertainty for investors, since future ROC prices are uncertain and could even conceivably collapse if excess renewable generation is built. Wholesale power prices are also uncertain over the long time periods investors must consider. This makes the cost of capital higher and makes investment most attractive to large companies able to manage risks and finance development on the balance sheet (Gross, Heptonstall, & Blyth 2007). Secondly, until recently ROCs were awarded per MWh regardless of the method of generation. Because of

this the RO effectively favoured mature, lower cost generation technologies like landfill gas over less mature, more expensive technologies like offshore wind and wave power.

The argument that market-based schemes such as the RO will find a low cost solution also neglects the temporal dimension involved in any market process, particularly where considerable capital investment is required to meet demand. At *some point in time* a set of minimum cost renewable options may emerge from market processes. But any assumption that markets can move *swiftly* to such a minimum cost equilibrium may be unrealistic, given the time needed to build renewables capacity, which may be exacerbated by planning and grid connection delays. Markets may be *out of equilibrium*, and targets not met, for a long time, resulting in high prices for renewables certificates. This may lead to criticisms based on 'overpayment' and developers getting 'supernormal' profits (NAO 2005; Ofgem 2007).

Even the notion that the RO obviates the need for policymakers to obtain information about costs is questionable. If developments cannot proceed because of grid limitations or planning (discussed elsewhere (Gross & Heptonstall 2010)), or if the obligation is simply set too high relative to feasible levels of renewable output, then consumers will pay a high price. Since government is responsible for setting the level of the obligation, a judgement about the tariff needed to encourage a particular renewable technology is simply replaced by a judgement about the appropriate volume of renewable electricity. Put another way, whereas feed in tariffs set price, obligations using tradable certificates set quantity - which determines price - so in either case a social (or political) choice ultimately determines the level of subsidy given to renewables.

## Emerging recognition of the RO's failings and the case against change

When the RO was created there was great faith in its superiority to fixed price schemes amongst policymakers, with the various launch documents enthusiastic about its benefits, based largely on economic theory (DTI 1999). The RO was set up as a 'pure' trading scheme; within the confines of renewable energy no technological differentiation was allowed. 'Banding' the RO in order to differentiate support by technology was considered, but the government decided against it for reasons set out in the RO Consultation documentation (DTI 2000).

The government maintained a largely ideological adherence to the RO (arguing its virtues based on economic theory) until the Energy Review of 2006. In the period to 2006 there is little recognition in official publications of any of the problems associated with the RO, or the impact of related policies such as transmission access or the planning regime. However, the 2006 Energy Review provided a far more explicit recognition than any previous government statement that all was not entirely as it could be with the UK's renewable energy policy (DTI 2006).

The 2006 Review acknowledged for the first time that there are limits to the ability of the RO to deliver all of the government's objectives for renewable energy. In particular the Review acknowledges that a technology blind certificate trading mechanism inevitably favours the least cost, most mature technologies and that this is not compatible with the desire to promote a wide range of renewable technologies. It also acknowledged the investment risk associated with certificate trading schemes, particularly for less well-established technologies.

The government went on to create 'banding' for the RO and a Feed in Tariff aimed at very small scale renewables (DECC 2009b). In an effort to assuage investor uncertainty created by the risk of future ROC price collapse the government also created 'guaranteed headroom'<sup>1</sup> in the Obligation.

In 2009 the UK government published another White Paper on energy. *The Low Carbon Transition Plan* (DECC 2009b). Alongside this the government trailed yet another modification to the RO, a revenue stabilisation mechanism, which would seek to reduce the impact of electricity wholesale price (and possibly ROC price) fluctuations on renewable energy investment (DECC 2009a). ROC prices would be managed by a regulatory body; provided with a floor and ceiling price. The primary objective is to make the RO more akin to a fixed price (FiT style) scheme in terms of the price risks (or lack thereof) created for investors.

The Coalition Statement on energy included an aspiration to create a FiT, though this is not explicit the most recent DECC energy statement (DECC 2010a; Liberal Democrat and Conservative Parties 2010). Overall, it appears that the principles on which the RO was founded have finally been abandoned. UK policymakers no longer maintain that the particular manifestation of market based subsidy created in the RO is the best way to support renewable energy. It is accepted, at least tacitly, that fixed price support schemes, differentiated by technology, are more effective ways to create markets for early stage technologies.

Few analysts now dispute the advantages offered by fixed price schemes. Arguments for retaining the RO instead focus on the potential for delays to renewables projects whilst new policies are discussed and consulted over, and on the regulatory risks associated with abandoning the UK's primary support instrument for renewables. There have been strong arguments from industry and other sources that abandoning the RO would risk disruption to investment and could undermine confidence in the UK's regulatory consistency (House of Lords 2008). The final section of this paper reassesses these arguments in the context of wider energy market reform and provides some suggestions as to how delay may be avoided or discouraged. Before that, it is important to consider a third approach to supporting renewables.

## A third way? Tenders for renewable capacity

Some commentators have proposed an alternative to both the RO and FiTs with premium prices are set by policymakers. Ofgem's Project Discovery suggests that the RO could be replaced with a capacity based tender for long run contracts for renewable generation. It moots this approach for all low carbon options, with tenders possibly differentiated by technology (Ofgem 2010). ICEPT's response to Project Discovery indicates that the case for using tenders is not well supported in Ofgem's consultation document, the evidence base, or in economic and business theory. The considerable body of evidence on FiTs ought to allow a proper comparative assessment with the capacity auctions Ofgem moots. Auctions/tenders have benefits in terms of price competition, but are problematic for emerging technology sectors.

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<sup>1</sup> This provision ensures that the obligation will be raised a given amount above actual renewable generation and hence maintain a degree of scarcity for ROCs, thus holding up ROC prices (BERR 2008)

Auction based schemes are poorly suited to relatively risky emerging technologies that have yet to be proven on the scale envisaged (like CCS, offshore wind, wave, tidal and some biomass technologies). In many cases core technology costs are based upon estimates and models rather than experience. In addition, where supply chains are largely absent, costs of key components/construction tasks cannot be known accurately. Cost escalations have become a prevalent feature of the offshore wind market in Britain, in part because of early optimism, part because of supply chain constraints (Greenacre, Gross, & Heptonstall 2010). Auctions may also be inappropriate for technologies that have not been developed in the UK context for many years and which are associated with particularly rigorous regulatory requirements during construction (nuclear). Under such conditions market participants seldom have sufficiently good cost information available ex-ante to be able to provide well judged bids.

These problems are well documented in the literature, with numerous examples cited. The phenomenon known as 'winner's curse' can occur whenever market participants must bid for an asset/licence/opportunity in the absence of perfect (or even adequate) information. Analysts note that the existence of winner's curse cannot be readily determined a-priori. It is an empirical phenomenon rather than something that can be demonstrated from theoretical principle (Mackley 2008). However, in the energy sector we already have indications of poor cost data ex-ante, of cost escalations and of disappointing auctions. In such conditions it is appropriate to view auctions with considerable caution relative to other, better proven, forms of support.

Classic winner's curse occurs when companies overpay for a licence/asset, for example in the 3G licence auctions in the telecommunications sector (Mackley 2008). In low carbon capacity auctions this can take an inverted form; participants make unrealistically low bids to deliver new assets in order to win contracts. Experience suggests that this happened in the UK under the former NFFO, leading to low completion rates (Mitchell & Connor 2004). The NFFO was not successful, mainly because there was a limited amount of money and no penalties. One remedy would be penalties for non-delivery. However, this does not remove any of the underlying problems associated with insufficient information about cost, nascent supply chains and uncertainty about technology performance. Indeed where auctions incorporate sanction for non-delivery participants may be especially subject to winner's curse.

On balance, given there are strong arguments *against* change to the RO, we need to consider very carefully the characteristics, novelty and track record of measures that might replace the RO. If the RO is to be replaced to enhance delivery the best proven option, the feed in tariff, needs to be assessed carefully (with delivery and investability key criteria) against more experimental options such as capacity auctions. International experience demonstrates that FiTs have considerable benefits for investor confidence, are proven to work and can be regressed over time to encourage cost reduction.

It is important to note that many of the concerns about auctions articulated above pertain to technology areas where cost or other key information is poor. There are likely to be many instances where auctions are an appropriate and cost effective means to deliver capacity or system services. It is also important to note that *tenders* need not be associated with *auctions*. Evaluating 'bids' on a non-auction basis (sometimes referred to as a 'beauty contest') is well established in the energy area and other regulated sectors. This approach was used by the Crown Estate when evaluating Round 3 offshore wind applications. When considering the full range of options to promote low carbon technologies this approach needs to be considered carefully.



It is important to stress that there are no fundamental inconsistencies between the case for FiTs relative to the RO and the case for a tender based approach relative to the RO/wider low carbon obligation. Both tenders for long run contracts and regulated FiTs offer greater investor certainty once power purchase contracts are in place than support through wholesale prices and trading. It is perfectly feasible to imagine a generalised system of long term contracts for low carbon generation of which some are priced through tenders and some fixed by policymakers and where the form of tender is differentiated by technology.

## A route forward for the UK

Given the scale of renewable energy deployment needed to meet the 2020 target, it is understandable that the government has been very sensitive to arguments from developers that fundamental reform to the RO will lead to delays. It appears as if the government's objective in the period since 2009 has been to avoid an investment hiatus whilst making the RO behave as much like a fixed price scheme as possible.

However, the investment proposition offered by renewable energy is affected by a range of regulatory factors, not just the RO. Wholesale power prices, the presence or absence of a capacity payment, balance charges and transmission access all affect development. These factors are all under review through the energy market reform process. Moreover, there was political uncertainty in the run up to the Comprehensive Spending Review, by due to speculation about the fate of the micro-generation Feed in Tariff and CCS levy. In the view of the authors, the strength of the arguments related to regulatory uncertainty and delay has been fundamentally undermined by the EMR process. A thoroughgoing review of power market design is already underway and there is little sense in adhering to a set of policies for renewable energy as if nothing had changed.

Moreover, it clearly cannot be the case that policy certainty (hence investor confidence) requires that policies are left intact for extended periods. Since introduction in 2002, the RO was modified almost incessantly, as Box 1 shows. Although the RO has continued to disappoint in comparison to other EU countries, there is no evidence that investment has been *frozen* due to policy uncertainty. Indeed throughout recent changes the UK has established a firm commitment to grandfathering. This commitment has positive implications for investment conditions and suggests that there may be a relatively straightforward route forward from the perspective of investors, should the UK decide to replace the RO.

### **Box 1: changes to the RO – regulatory certainty?**

- 2002 – Renewables Obligation Order 2002 comes into force. Obligation level set to rise from 3% in 2002/2003 to 10.4% by 2010/2011, and then to remain at that level until 2027. Maximum contribution from co-firing set at 25% of a suppliers obligation.
- 2004 – Renewables Obligation (Amendment) Order comes into force. Rules amended so that very small generators qualify for Renewable Obligation Certificates (ROCs), and changes to the rules for co-firing to encourage the establishment of dedicated energy crop supplies.
- 2005 – Renewables Obligation Order 2005 comes into force. Obligation level extended so that it will rise from 10.4% in 2010/2011 to 15.4% in 2015/2016 and then remain at that level until 2027.
- 2006 – Renewables Obligation Order 2006 comes into force. Modifications to make energy from waste-fuelled Combined Heat and Power generation eligible for ROCs). Suggested that support for lower-cost technologies should taper.
- 2006 – Energy Review proposes to extend the obligation level to 20% on a 'guaranteed headroom' basis, with the buyout price frozen from 2015, and to consult on differentiating the level of RO support through banding by technology type.
- 2006 – First consultation on banding the RO
- 2007 – Renewables Obligation Order (Amendment) Order 2007 comes into force. Further changes to the co-firing rules to provide support in the interim period between the announcement of banding proposals (see above), and banding coming into force.
- 2007 – Energy White Paper and second consultation on banding the RO.
- 2008 – Energy Act 2008 comes into force, providing the statutory basis for the introduction of RO banding.
- 2008 – Pre-budget report announces that the RO will be extended to at least 2037, subject to statutory consultation and inclusion in a future Renewables Obligation Order.
- 2009 – Renewables Obligation Order 2009 comes into force. Introduces banding (ROC multiples) by technology so that higher-cost technologies earn more ROCs per unit of electricity than lower-cost technologies.
- 2009 – The ROC multiple for offshore wind comes under review in response to concerns over steeply rising costs for this technology.
- 2009 – Consultation on renewable electricity financial incentives raises the possibility of looking at mechanisms to stabilise electricity and ROC prices.

The potential to move swiftly to a FiT based environment may be greater than some argue, provided this is done carefully, with the UK's commitment to grandfathering intact. There is clear danger of regulatory risk and delay but the scale and significance of this deserves further empirical analysis, perhaps combined with investment decision modelling. This could be taken forward through research with investors and investment analysts. There is a dearth of independent assessment of the risks and benefits associated with transit to a system offering FiTs, at least for riskier renewables. The government may be giving considerable weight to the arguments of incumbent market participants. These arguments are without doubt valid, but they are not quite as unimpeachable as they might have been before the EMR process began.

There is now compelling international evidence that renewable energy policy can be done better than it has historically in the UK. Policy needs to create conditions conducive to low risk investment, attractive to a wider constituency of investors, with transparency, simplicity and clear long term signals for cost reduction. It is also important to control the overall burden on consumers. Whilst floor prices in the RO can help with price risks they exacerbate the complexity associated with its operation and do nothing to make investment more attractive to a wider set of constituents. Given a new context, where changing the RO is part and parcel of wider market reform, it is possible that the case against change is weakened.

A key question that now arises is therefore whether the negative consequences associated with change, mainly delays, can be minimised. The following route forward for policy deserves detailed investigation:

- Acknowledge now that a FiT or similar (possibly with an element of auctioning) would be a more effective approach to support for UK renewables, for all but the nearest commercial options (landfill gas, onshore wind, co-firing).
- Announce an intention to replace support for all options with a ROC multiple above 1 with a FiT when current multiples are reviewed in 2014.

- To prevent an investment hiatus, make clear that it is by no means assured that the FiT will be more generous than the ROC multiple. Guarantee that all investments made in the interim will be grandfathered fully.
- Assess and take steps to obviate the option value associated with waiting until the RO to FiT transition is complete. Government could design policy to overcome the waiting option. For example, more aggressive FiT regression could be built into FiT projections, up to the option value to wait. A short term additional premium would have the same effect, albeit at additional cost.
- Extend the micro-generation FiT to 25 or 30 MW for community owned schemes.
- Mature technologies could have the option of transferring to a FiT or moving to participate in a wider low carbon obligation should one be established.

Some commentators have suggested that the current (micro-generation) FiT regime is too costly and is socially regressive. In fact negative impacts on poorer consumers can be avoided or reversed given innovative financing/energy service arrangements that allow investors to benefit from FiT revenues whilst householders benefit from bill reduction. This paper is not focused on social equity, but the overall impact of a FiT scheme on consumer bills can be controlled in two ways:

- Volume based restrictions can be placed on the capacity of higher cost options that will be able to claim FiTs. For example a maximum total installed MW of PV, micro-wind, etc that will be eligible for a given FiT rate. This is common in other countries and would be simple to implement.
- Ambitious forward targets can be set for cost regression. This would also be useful in sectors such as offshore wind, where current costs are high.

The changes above only address some of the issues associated with UK renewables development. Additional work is needed on a wide range of other issues including the policy overlaps recently highlighted by (McIlveen 2010) and measures to promote innovation in marine and other early stage options. The authors also argue in a UKERC report on the costs of offshore wind that far more attention needs to be paid to developing the UK supply chain, especially in offshore wind.

In summary, the case *for* a move to FiTs is strong. It combines improved investment potential across many categories of investor and a much better chance of engaging communities and helping build a supporting public. It is consistent with a wider system of long term contracts for low carbon generation, with or without a system to auction such contracts. The case *against* is now built primarily on the potential for change to create delay. In the current context this case has become less compelling than it might have been a year or two ago. It is possible to ameliorate some of the delays, through careful management of change. Overall there is a case for the UK government to make a decisive change to renewables support and move to a more effective, lower cost and inclusive system, based on feed in tariffs.

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