



**Climate change matters**



**TransformUK**  
investment for a **clean energy** future

**EMR Consultation response by Climate Change Matters & Transform UK**

**10<sup>th</sup> March 2011**

**Summary**

We welcome the proposals to replace the Renewable Obligation with a feed in tariff and have carefully examined the proposals contained in the electricity market reform consultation.

We note that the consultation considers three options, the fixed feed in tariff as used in Germany, the contract for difference feed in tariff as used in Denmark and the Netherlands and the premium feed in tariff as used in Spain.

We note that the fixed feed in tariff which scores well in the analysis is not taken forward, primarily due to the difficulties of interface with the wholesale electricity system. Consequently there is a preference for a contract for difference feed in system which introduces a degree of market risk, with the premium feed in tariff seen as a fallback option.

We share the preference for a contract for difference feed in tariff over a premium feed in tariff, as the latter provides insufficient protection for the taxpayer / consumer against rising energy and carbon prices and being similar to the RO has many of its disadvantages.

We suggest that Government should not introduce a premium feed in tariff given recent experience in Spain which has suffered very painful readjustments to its tariffs, due to their cost, causing major reductions in capacity build. The danger

of introducing a premium feed in tariff is that an initial period of boom is then followed by a bust.

However we believe that by far the best option is the fixed feed in tariff. As applied in Germany it has proved very effective in terms of capacity build, plurality of investment, community participation and lower cost to the taxpayer consumer for each kwh produced.

In particular we believe the Government should ask Redpoint to model the two tier feed in tariff adopted in Germany for onshore and offshore wind which has the benefit of matching cash-flows closer to loan prepayment profiles, increasing bankability, lowering investor return requirements and providing considerable cost advantages. In the latter period of the tariff renewable electricity is sold to the grid at prices much closer to brown power prices.

Consequently over a period of time Germany has built up a portfolio of relatively cheap renewable electricity and also enjoyed high levels of capacity build. We believe that if this approach is properly modelled it would reveal very considerable financial advantages to the taxpayer / consumer over and above those shown in the report. As it is the modelling already undertaken by Redpoint already shows under most scenarios that the fixed feed in tariff is cheaper for the consumer.

We have made a proposal in our response as to how a fixed feed in tariff could interface successfully with the wholesale electricity markets and achieve a rapid conversion of RO contracts to the new system, obviating the need for a two stream system advocated in the consultation and reducing investor uncertainty.

There are a number of serious problems with the CFD tariff:

- It is less familiar to investors than the fixed feed in tariff and capacity build in the exemplar countries has been limited.
- It is complex and does bring a degree of market risk that some investors may not wish to take and which would be likely to be daunting to many sponsors of large scale community schemes , and also to many businesses. They may conclude, as do many under the RO (and as they would with the premium tariff) that the market is best left to utilities and specialists.
- It is more costly than a fixed feed in tariff.
- There is likely to be value leakage for smaller players who will need to negotiate power purchase agreements with much better informed utilities.
- Intermittent renewables will suffer balancing risks in a market including nuclear and clean coal base load providers. Renewables will therefore suffer a competitive disadvantage.

Should a contract for difference system be implemented a number of protections would be required:

- Regulatory oversight of discounts demanded in contract negotiations.
- Mandatory auctions of some capacity to provide transparency of pricing.
- Extension of small scale feed in tariffs to say 20Mgw to assist smaller developers, community schemes and emerging technologies who may find CFDs challenging due to variations in availability.

However even these protections would not deal with the serious shortcomings in the CFD outlined above and a fixed feed in tariff is still our strongly preferred option.

In any event we believe auction processes should not occur (tending not to work where permitting is uncertain), that tariffs should be technology specific and that renewables should be given priority of dispatch as the supplier obligation will have lapsed.

We have also suggested that high energy users be allowed to own offsite renewable generation which they net meter against their usage in return for a regulated fee for transmission and balancing services. This would transform the prospects of many industries such as the steel industry who would be able to reduce exposure to rising energy and carbon prices, thus preserving UK jobs.

A key issue in the UK is planning and the evidence is that broad community and business participation in the market is crucial to the rate of planning consent. This is best achieved with a fixed feed in tariff.

We strongly recommend that a conventional fixed feed in tariff should be adopted which we believe will provide significant benefits to the investor and the tax payer/ consumer compared to the CFD or Premium feed in tariff models. It would unquestionably provide the highest levels of investor certainty and the lowest cost to the consumer.

## **Current market arrangements**

### **1. Do you agree with the Government's assessment of the ability of the current market to support the investment in low-carbon generation needed to meet environmental targets?**

Whilst the RO has been successful in increasing the level of development activity and capacity installation in the UK following the largely unsuccessful auction based NFFO, it has been far less effective than systems more commonly used in Europe such as the fixed price feed in tariff used in Europe and the premium feed in tariff used in Spain. Both of these systems provide adequate rewards to developers and much more investment certainty, leading to greater plurality of market investment. Such systems are well understood by a broader selection of

banks and institutional investors, easing the path to finance. This allows greater levels of community and local business ownership which tends in itself to increase planning success.

In contrast the RO has become ever more complex as it is less well able to respond to either downward or upward changes in equipment prices, as witnessed in the offshore sector.

As the RO is not vintage based, changes to reflect current circumstances can create past windfalls (creating a high valued M and A market in the UK). It also means that UK Plc has not built up an inheritance of more cheaply priced renewables capacity as has occurred in Germany.

As the RO is uncapped it does not protect the taxpayer /consumer against rising energy prices and future carbon price rises. Per kw/h generated it tends to be more expensive than other European mechanisms.

Its complexity means that participation in the market tends to be restricted to utilities and specialist investors. Due to risk issues many investment funds prefer to invest in jurisdictions with more familiar feed in tariffs rather than those with bespoke market based mechanisms. The increased risk posed by a market based mechanism increases returns required by those willing to invest. Banks tend to require more complex covenant arrangements, and in some cases higher margins.

Under the RO independent developers are required to obtain PPA's from suppliers who purchase electricity produced, LEC and RO certificates (plus buyback) at a discount through their separate deregulated trading arms to reflect the credit risk they take (PPA exposure is evaluated in the credit scoring of utilities), and to reflect balancing risk. At times discounts have been from 5 to 15 percent in early years, now more commonly 10 per cent, so that not all of the benefits flow through to the operator. The design of the RO means that there is very little transparency for the taxpayer/consumer compared to the fixed feed in tariff or the premium feed in tariff.

*It is important that any successor scheme avoids these disadvantages.*

In order to achieve our 2050 targets it will be necessary to have a substantial volume of renewable electricity. Some countries such as Germany are planning for all their electricity to be renewables based by this time. In the UK at the very least the majority of electricity is likely to be renewables based. It is important that developers and operators earn adequate returns to ensure that capacity is delivered. But given the market share posited for renewables it is also important that a new mechanism also provides value for money for the taxpayer /consumer. Protection against future rising fossil fuel prices is an important part of this equation which we believe is well understood by the consumer/taxpayer who is we would suggest prepared to undertake investment by a paying a premium for low carbon electricity now to obtain this hedge.

We also suggest that it is important that any new structure does not lead to windfall profits as that would not be in the long term interests of the sector as it seeks to move to a high share of the energy market overall. Hence the type of mechanism whereby collective failure (in the sense of not meeting capacity targets) rewarded successful developers by reason of high levels of recycled RO payments is not helpful.

These returns were understandably not rejected by individual market players frustrated as any by the relatively low level of permitting success. In many countries as tariffs have become more transparent there has been appropriate debate about their level. Given that support is funded by the taxpayer/consumer it should be recognised that rewards should not go above amounts that would be understood by the taxpayer/consumer as appropriate to the circumstances. The difficulty with a market based mechanism where there is restriction of supply, often due to availability of grid and to some extent planning<sup>1</sup>, is that rewards (and losses) can be a lottery. There is the danger that the understandable desire to build market disciplines into the process can have unforeseen consequences, increasing both risk and the cost of the capacity introduced.

## **2. Do you agree with the Government's assessment of the future risks to the UK's security of electricity supplies?**

The UK has consistently underestimated the time taken to bring on new generation capacity and there are substantial risks to security of supply in the short to medium term as a consequence of the retirement of ageing fossil fuel and nuclear capacity. Renewable generation has the advantage, particularly onshore, of having relatively short and straight forward construction schedules. Whilst the progress in respect of offshore wind is to be commended there is a concern that insufficient priority has been placed on onshore renewables.

We agree that there are insufficient price signals in the market to stimulate appropriate levels of investment in low carbon capacity and note that with the dampening impact of shale gas on wholesale electricity prices in the short term, there is a danger that investment will continue to be delayed.

This is compounded by continued market failure in the provision of adequate levels of debt and equity finance and we question whether sufficient tax incentives are available to attract public investment in the sector. We have separately made proposals in the report *'let the business and the people invest: 10 tax incentives for low carbon growth'* for greater use of EIS VCTS and Green ISAs in the provision of equity capital and the creation of tax exempt community bonds to provide substantial volumes of capital for community infrastructure. We believe this initiative is vital if sufficient capacity is to be brought through

---

<sup>1</sup> (although EWEA statistics do not place the UK as the worst performing territory in this regard)

planning. This process would be aided by the creation of non complex feed in tariffs which are more likely to appeal to investors.

### **Feed in tariffs**

#### **3. Do you agree with the Government's assessment of the pros and cons of each of the models of feed-in tariff (FIT)?**

We have a number of concerns in relation to the Government's assessment of the pros and cons of each of the models of feed – in tariff and are concerned that the fixed feed in tariff as used in Germany has been not reviewed in sufficient depth leading them not to feature in the list of preferred options, when they do strongly merit such consideration.

In particular we are concerned that the financial modelling undertaken may not have taken account of the stepped down profile of the German system in relation to onshore wind and offshore wind whereby tariffs are considerably reduced after an initial period. In France a variation of this model occurs with lower payments in years 11 to 15 dependent on the output of the windfarm . These profiles allow debt to be repaid in early years which is attractive to banks. It would appear that Redpoint have assumed in their modelling a flat tariff rate for the feed in tariff at a rate consistent with the early higher rate paid in Germany . Given the significant proportion of renewable electricity generation assumed to come from both offshore and onshore wind we consider that this could have major effect on outcomes and that without this step the evaluation could have taken place on a false premise.

As a consequence we believe the relative savings likely to occur from the adoption of such a stepped down feed in tariff system have not been drawn out in the report.

We note that the Redpoint modelling did in fact find that the fixed feed in tariff was under most scenarios the most cost effective option for consumers. We therefore do not understand why the CFD model has been set out as the cheapest model for the consumer.

We would expect that if further modelling was undertaken based on stepped down feed in tariffs similar to those in Germany then even greater savings to consumers would be discovered than a CFD fit can offer. The premium fit does not insulate the consumer against rising energy prices or carbon prices which is a significant disadvantage to the consumer.

We would also argue that as the German and French wind sectors have been able to obtain finance notwithstanding these tariff profiles, that it is likely that hurdle rates required by investors for such tariffs are lower than implied in Redpoint's analysis. A further reason for this is that in most European countries renewables has priority of dispatch which when combined with a feed in tariff reduces financing risk considerably.

*We suggest that Redpoint be requested to undertake further modelling by reference to a stepped down non-inflated tariff similar to the German model for consideration by Ministers. In addition we suggest empirical evidence should be obtained as to the behaviour of banks and investors under different markets and the impact on hurdle rates and finance offers and the plurality of investment.*

*We suggest that priority of dispatch should be actively considered whatever model of FIT is adopted.*

More generally we are concerned that the analysis in the consultation places great emphasis on modelling which although undoubtedly of a high standard should be complemented by an examination of what is happening in practice.

We are a little surprised at the citing of Denmark offshore wind and current CFD fixed tariff in the Netherlands as exemplars as growth in renewables in these countries primarily occurred in the 1990s when more conventional feed in tariffs were in place. Capacity growth in recent years has been low in these countries and well below the rates enjoyed by jurisdictions with either fixed or premium feed in tariffs. Spain which has benefitted from growth of capacity due to the favourable terms of its premium tariff (which its energy minister commented was too high compared to other countries) has recently undergone a painful revision to its system which has slashed capacity growth and has even involved retrospective changes to pv tariffs to reduce costs albeit at the extension of ppa terms.

As with a number of respondents to the consultation we question the reduction in hurdle rates (paragraph 31) for wind energy under a CFD which implies that a CFd fit reduces risk to the same extent as a fixed Fit.

The CFD mechanism proposed (and indeed a premium tariff ) leaves renewable energy generators vulnerable to balancing risk and to trading risk as illustrated by the example relating to CFDs of generators who sell at either above or below the market price. These risks will be reflected in hurdle rates. Small operators and non specialist generators will be less well able to judge the timing of such transactions , whereas utilities with their greater knowledge of likely price trends (and ability to influence them albeit subject to regulatory control) would be placed at a considerable competitive advantage. The CFD is therefore likely to give a strong competitive advantage to nuclear operators above renewables operators.

It is highly unlikely that community schemes would wish to engage in second guessing the market as implied by the consultation and in practice they would tend to contract with a supplier or other intermediary to deal with this risk on their behalf. As a consequence deductions from project revenues at least as great as that which currently occurs under the RO are likely to occur.

Without an obligation or the protection of an entirely fixed feed in tariff, there would seem to be no incentive for a supplier counterparty to offer the best terms particularly in high wind times, and ppas issued might either be at a very high

discount or when wind becomes a significant proportion of generation may refuse to entirely close this risk out. There is a precedent in that high discounts occurred in the early years of the RO when suppliers were less concerned than now to meet targets.

It is not clear that this type of value leakage has been reflected in the Redpoint modelling. Whilst priority of dispatch as referred to above would help redress this contracting inequality it would not fully address the issue relating to balancing risk.

Indeed the problems posed by balancing risk is likely to become particularly evident towards 2020 as offshore wind capacity becomes a significant component of low carbon energy production and investors are likely to examine this risk very carefully before building plant which may become subject to balancing risk. This could affect the rate of capacity build.

There is a very great danger that very material discounts could be suffered by intermittent renewables over say the more predictable Nuclear or later Clean coal plants – so that whilst the headline price paid for by the taxpayer consumer may be the contracted tariff level, the amount received by generators could be significantly less.

As most ppas would be negotiated on a private bilateral basis there would be no transparency and once nffa auctions of past nffa capacity cease (circa 2017) there would be no publicly available data as to the different prices paid under market conditions for different types of electricity - which in the past has acted as a valuable benchmark of discounts appropriate for balancing risk when undertaking price negotiations for ppas.

As such negotiations are conducted by the deregulated part of utilities there is the prospect of a commission, albeit for a valid service, being earned for the distribution that might be termed quasi public/taxpayer monies . In extremis these risks may make suppliers understandably reluctant to enter into long term ppa arrangements (due to their inability to evaluate the appropriate level of balancing risk) in a form that would be suitable to bankers.

A further complication posed by CFDs is that the peaks and troughs between prices obtained by a generator selling at the right time and one selling at the wrong time could well be much greater than that shown on the chart with losers losing significantly, and winners doing very well. It is not clear that this type of remuneration profile is that which would be expected by a taxpayer/consumer in approving the increase in electricity bills that is necessary to pay for low carbon investment.

In most continental countries with a fixed feed in tariff there has been wide prevalence of community based schemes and it would be a shame if over-complex CFD arrangements applied to a Fit reduced the extent of their involvement, as seems likely.



We believe that without balancing risk being addressed, market participation of renewables under a CFD fit will be far lower than would occur with a straightforward fixed FIT and that there is a strong risk that capacity would not be introduced at the speed to remove the risk of outages identified by ofgem's project discovery as fossil fuel and old nuclear plants retire.

Although this would also theoretically be the case with premium fits it may well be that developers continue to build capacity as they are likely to anticipate, should energy and carbon prices rise, that they will enjoy windfall profits in later years as combined tariffs rise to levels well above those anticipated at the time of project close. Both fixed feed in tariffs and CFD fits avoid this latter risk but only fixed feed in tariffs solve the problem of balancing for the generator.

Page 81 makes mention of the types of initiatives to assist balancing that could be pursued -including some form of aggregation of intermittent renewables and we would suggest that a more active approach than just "waiting and seeing", referred to as current government policy, should be adopted. Independent developers and community schemes for one are likely to welcome if not require some form of assistance in the form envisaged by ofgem.

#### **4. Do you agree with the Government's preferred policy of introducing a contract for difference based feed-in tariff (FIT with CfD)?**

Whilst we believe all three systems are preferable to the RO, we believe that given the significant number of disadvantages to both the premium and CFD feed in tariffs a fixed feed in tariff similar to that used in Germany should be the preferred model, ideally with renewables given priority of dispatch (subject to the grid operator making payments for capacity to be stood down.)

As stated in our answer to question 3 we are concerned that the financial benefits of such a tariff have been understated, distorting the analysis in the report. We have recommended that at the very least further modelling takes place and empirical evidence examined to compare actual experience and rates of capacity build in each jurisdiction (as commented above capacity build in Denmark and Holland quoted as the prime examples of CFD feed in tariffs has been very poor in recent years.)

We would expect that modelling more closely replicating the German stepped fixed feed in tariff for wind would:

- show considerable savings to the consumer/tax payer ;
- provide more secure returns and thus lower hurdle rates for the investor;
- provide more reliable cashflows for banks more closely matching their loan repayment profiles
- achieve greater ease of suitability for the less sophisticated generator eg community wind farm

- provide greater compatibility with similar systems in many other jurisdictions.
- And greater levels of likely capacity build particularly as its suitability for community developers would increase the number of schemes coming forward with local support and thus more likely to gain planning permission.

We have outlined a number of our concerns relating to the CFD feed in tariff in our answer to question 3 above.

There is also one critical factor at play which is that the purpose of low carbon incentives is to ensure that capacity is built even when market signals are insufficient so that ageing fossil and nuclear capacity is replaced and adequate growth in renewables capacity occurs.

This will become even more evident as transport moves towards electricity and ground source and air source heat pumps electrify a proportion of the heat market. The concern is that it may be premature given where we are in relation to our targets (and as compared to other European countries who have benefitted from feed in tariffs) to be overzealous in the application of over complex market based mechanisms such as the CFD, thereby undermining some of the attractions implied by the term feed in tariff itself.

We would suggest that at the very least, further exploration should occur as to how the wholesale market could be made to work with German style feed in tariffs and we are concerned that the Consultation document is silent on this issue. Given the likely savings to the consumer referred to above and the likely benefits a fixed fit brings of widening participation in the market by investors and communities, a fixed feed in tariff should be considered the strongest option.

In our report *Renewables fit for 2050 published in January 2010* (and referenced in the conservative party energy manifesto) we outlined some suggestions as to how a feed in tariff might be implemented in practice and interface wholesale electricity markets. We repeat these proposals, which involve :

*For new projects*

- Adoption of fixed feed in tariffs based on the German stepped down model used for onshore and offshore, set with a view to aid the repayment of debt finance, with profiles and tariffs set by consultants for new projects using output from the forthcoming banding review supplemented by comparisons of costs with other countries (to ensure that intra European distortions are not taking place in equipment prices due to differing support regimes)

- Tariffs to take into account the likely average cost of balancing, which risk would be accepted by the renewables aggregator (which could be the nfpfa , ofgem or similar body).
- Mechanisms to be built in to the tariffs adjust them automatically downward in the event of greater capacity than anticipated being tendered (allowing time for any reductions in future tariffs to be considered). This system has been used to great effect in Germany for solar PV but could be applied to all technologies.
- Consideration of the use of specific degression rates to be applied but with the right to review and adjust to take account of market shocks , which in the case of the UK can include the effects of currency movements.

#### *For existing RO contracts*

- Early and swift conversion of existing RO contracts to a fixed feed in tariff format based on the average for the last 3 years electricity price , lec price, roc price and roc recycle (adjusted by technology band ) paid to generators possibly after rather than before, supplier discounts .
- The electricity from such contracts would be made available and have to be taken, by the suppliers originally contracted under any existing ppa's with balancing cost made good to the renewables aggregator; the pricing arrangements for generators would end on the 20<sup>th</sup> anniversary of first generation. and the must take arrangements by suppliers would end on the date of expiry of the original ppa.

#### *Interface with the wholesale electricity markets*

- surplus power purchased above and not taken up by original ppas counterparties would be made available by the system aggregator for auction, together with old nffo electricity.
- It is suggested that the renewables aggregator may wish to split up such power into tranches with different low carbon power mixes to minimise balancing risk) and for different contract durations to facilitate liquidity. It is possible that this role could be tendered to resource consolidators.
- In view of the relatively low proportion of non-contracted power initially it is suggested that auctions would follow the current nfpfa timetable, but would gradually occur more frequently as capacity built up, with some tranches of electricity being auctioned on a daily basis.
- Consideration would be given to reserving some generation for small suppliers at the average rate.

- The aggregator may also wish to contract with the grid operator to take certain generators off supply in return for compensation.

#### *Effect on consumers*

- The aggregator would collect monies from the sale of electricity under the arrangements above and make the relevant payments under the feed in tariff to generators. The surplus or deficit would be levies/paid to consumers. Ideally this amount per kw/h would be transparent on the electricity bill.

One key benefit of the approach outlined is that the riskier interfaces are between the aggregator and the integrated suppliers who are we would suggest the most sophisticated players in the ecosystem and thus better able to deal with that risk. In a way both the CFD (and to a lesser extent) the premium feed in tariffs place that risk on those least able to deal with it - the small community wind developer – to the extent that many investors with low risk or low complexity appetites may prefer not to participate in the market.

If the issues relating to the interface with the wholesale market are truly insurmountable and the CFd model is followed it is suggested that :

- Regulatory supervision of balancing occurs.
- Integrated suppliers are required to make a proportion of their capacity available to auction so that price transparency as to the impact of balancing risk can occur once nfpA auctions cease.
- That priority of dispatch occurs with the system buyer being able to shut down for payments .
- Ofgem or other body act as an aggregator of intermittent renewables perhaps in a similar way as in Spain to reduce balancing risk
- Large suppliers are required to purchase a proportion of their needs from small independent producers (especially if there is no priority of dispatch).
- A single cash out price is used for balancing removing some risk for renewables.
- That the remote net metering arrangements proposed for high energy users above be introduced

We do not agree that premium feed in tariffs are an acceptable alternative to CFDs as they bring many of the same risks in relation to balancing and do not protect customers from rising energy or carbon prices .

It is worth observing that premium feed in tariffs were very popular in Spain in their early years , with many developers earning windfall profits , but are now less so given the major readjustments that have occurred – with the consequence that many projects are now shelved.

**5. What do you see as the advantages and disadvantages of transferring different risks from the generator or the supplier to the Government? In particular, what are the implications of removing the (long-term) electricity price risk from generators under the CfD model?**

We believe that an aggregator of intermittent power if such power is auctioned under tranches as suggested in our answer to 4 above would have some benefits in reducing balancing risk (although the suggestion is made under the context of a fixed feed in tariff system rather than a CFD system). Whilst this could be handled by a government body its operation could be contracted out as occurs in effect with the National Grid.

We believe that it is appropriate to remove long term risk from generators but would prefer that this is accomplished by a fixed feed in tariff. Under a CFD, notwithstanding a strike price, substantial risk can remain if a CFD is settled over an extended period (albeit subject to wholesale electricity price indexation) which is referred to by some commentators as index basis risk. There is also the concern that the highly specialist nature of CFDs in themselves add risk for less sophisticated market participants or at least the perception of such risk.

**6. What are the efficient operational decisions that the price signal incentivises? How important are these for the market to function properly? How would they be affected by the proposed policy?**

We note that the consultation cites the example that exposure to wholesale prices would have the beneficial effect of encouraging operators to conduct maintenance when prices are low but would suggest that this point is more relevant to base load fossil fuel plant, clean coal and nuclear (and possibly some biomass plants) : in the case of renewables servicing schedules are influenced by the need to keep availability high in peak resource months and in the case of offshore wind windows for accessibility. It is unlikely that the presence or not of a CFD structure would have a significant impact on these behaviours.

**7. Do you agree with the Government's assessment of the impact of the different models of FITs on the cost of capital for low-carbon generators?**

We have raised very significant concerns that the modelling results are distorted in that they do not take account of the more common stepped function of feed in tariffs found in Germany and France. We are also not sure that value leakage due to the imperfect market conditions surrounding ppa negotiations including balancing and credit risk has been correctly modelled.

We recommend that the models are re-run using German tariff data for wind and offshore wind and that empirical evidence is gathered of actual returns under the various systems so that ministers are fully informed before they make their decision. We are also not sure that the model takes full account of the factors affecting financiers and investors which is essential to consider.

**8. What impact do you think the different models of FITs will have on the availability of finance for low-carbon electricity generation investments from both new investors and the existing investor base?**

We believe fixed feed in tariffs, especially those with a stepped design, with higher cash-flows in early years, are the most attractive to bankers and investors once base hurdle rates are achieved. In particular they achieve the greatest plurality of investment and in particular the high levels of community participation that assist in planning processes for the industry as a whole.

Whilst in theory we expect CFD fits should be the next most attractive we are concerned that levels of participation and plurality may not be as high as would be expected (although they should be greater than under the RO). Due to lack of familiarity we would suggest that careful education and attempts to make the system as simple as possible would be required. Nevertheless CFDs will inherently be higher risk and more complex than fixed feed in tariffs and this will affect the pricing as well as availability of finance.

Investors and financiers are familiar with premium feed in tariffs, and it is likely that a certain subset of investors, including existing players, would be attracted to it because of the prospect of high profits when energy prices and carbon prices rise. Those market players averse to such risks and conscious of experience in Spain may not and there is the danger that after the boom of the early years of such a scheme there follows a bust.

It is noticeable that in Spain regional businesses and venture capitalists were active players in addition to utilities and some infrastructure funds whereas in Germany there has been a greater level of community player (albeit driven in the early years from the ability to write depreciation off against personal tax bills under what was termed KG funding in a similar manner to film partnerships in the UK). More recently infrastructure funds have also become more active due to the regularity of lower risk returns on offer, and the ability to increase returns by aggregating existing portfolios. In our separate report *let business and the people invest* we have suggested tax incentives which would assist in encouraging business and community involvement in wind farms. We believe that tax incentives should be considered as a complementary policy measure as electricity market reform is unlikely to be sufficient in itself to draw in the huge levels of capital required by our transition to a low carbon economy and replacement of ageing fossil fuel and nuclear capacity.

**9. What impact do you think the different models of FITs will have on different types of generators (e.g. vertically integrated utilities, existing independent gas, wind or biomass generators and new entrant generators)? How would the different models impact on contract negotiations/relationships with electricity suppliers?**

The CFD fit model and to a some extent the premium feed in tariff model is less attractive for intermittent technologies and also for emerging technologies such

as wave and tidal and advance conversion technologies for biomass whose availability levels in the early period of operation may be subject to uncertainty.

In the case of technologies dependent on variable flows of feedstock the CFD approach may also provide further difficulties. Vertically integrated utilities are best placed to cope with the market risks and contracting complexities posed by the CFD fit and premium feed in tariff and their trading arms could benefit from the stronger natural position they could enjoy in ppa negotiations without the impetus of an obligation.

We would prefer renewables to have priority of dispatch in all cases. We are very concerned that as data from nffa auctions of old nffo contract electricity ceases there will be no publicly available information showing the difference between base load renewables and intermittent renewables thus providing a benchmark for the cost of balancing risk. We have expressed our concerns in detail in our reply to question 3 and suggest that regulatory review and other controls may be required. We have also commented that under CFDs and to a lesser extent premium tariffs base load low carbon electricity enjoys an advantage which may lead to prices for intermittent renewables and less reliable emerging technologies being squeezed.

**10. How important do you think greater liquidity in the wholesale market is to the effective operation of the FIT with CfD model? What reference price or index should be used?**

We believe that market liquidity is vital and that suggestions by Ofgem should be implemented sooner rather than later but are concerned that the direction of the question confirms the complexity that a CFD fit and to a degree premium feed in tariffs pose. To control the risk trading needs to take place as close to gate closure as possible, ideally through a single cash out price. Renewables and many less sophisticated market participants will not wish to be trammelled with such issues or will subcontract them to intermediaries at financial cost.

Furthermore we would suggest that the measures we have put forward above to provide an interface between a fixed feed in tariff and the wholesale market better addresses this issue: especially as electricity is auctioned to suppliers who are best able to deal with this risk. Under the proposed arrangements for the CFD the least sophisticated participants would in theory be exposed to the most difficult aspects of the new market arrangements. Whilst it may be thought beneficial to introduce a degree of market exposure in this way it is suggested that many prospective participants in the new market economy may choose simply not to engage due to the complexities posed.

**11. Should the FIT be paid on availability or output?**

We believe, other than for strategic reserve, all mechanisms should be based on output payments and that priority of dispatch would be a better way to prioritise

renewables. We believe that negative pricing risk may be better solved by payments to take capacity off line.

**26. Do you agree with the Government's preferred package of options (carbon price support, feed-in tariff (CfD or premium), emission performance standard, peak capacity tender)? Why?**

We believe that a package involving fixed feed in tariffs should be re-examined taking account the benefits a stepped approach as used in Germany and France would have both for the industry and the taxpayer/consumer. This type of mechanism is the most readily understood by global players and has a strong track record of delivering and encouraging a plurality of market players in particular community schemes. It has tended to deliver strong capacity growth and if properly managed (sometimes on an interventionist basis) can deal with price shocks and market distortions. Moreover by building in automatic price adjustment if target volumes are met there is some ability to protect against oversupply in any one year. We believe that we have set out effective proposals as to how such a tariff would interface with the wholesale markets and believe that these and any alternatives should be carefully examined. We are in favour of carbon support with a relatively strong ratchet upwards over time. In order to protect high energy users we have suggested how remote net metering could be used to encourage such businesses to hedge and reduce their energy costs by way of renewable energy generation. We do not comment on the other components of the package in this document.

The countries cited as exemplars of the CFD have had relatively poor levels of capacity build. If a CFD is adopted then it would be sensible to raise the band for the small scale feed in tariff to 20mgw (in aggregate) thus allowing larger scale community projects and encouraging emerging technologies which might find a CFD feed in tariff with balancing risk challenging, given possible availability issue in early years.

**27. What are your views on the alternative package that Government has described?**

We are concerned that premium feed in tariffs without caps and collars could lead to the boom bust market suffered by Spain. We are also concerned that rising energy and carbon cost would be passed on to the consumer / taxpayer and that whilst the tariff is similar to that of the RO it will similarly have a subset rather than full set of market participants.

**30. What do you think are the main implementation risks for the Government's preferred package? Are these risks different for the other packages being considered?**



We believe that there are considerable risks with the CFD tariff. We believe that these could lead to insufficient market participation.

We are concerned that insufficient attention has been paid to the measures required to interface a feed in tariff with the wholesale market. We do not believe this challenge, based on our own suggestion, is insurmountable.

In relation to the premium feed in tariff we are concerned that the system could prove too expensive for the taxpayer / consumer unless subject to controls and could as in Spain require dismantling or radical adjustment after only a short period of time. This was a difficulty faced periodically by the RO to which it is similar.

**31. Do you have views on the role that auctions or tenders can play in setting the price for a feed-in tariff, compared to administratively determined support levels?**

- Can auctions or tenders deliver competitive market prices that appropriately reflect the risks and uncertainties of new or emerging technologies?
- Should auctions, tenders or the administrative approach to setting levels be technology neutral or technology specific?
- How should the different costs of each technology be reflected? Should there be a single contract for difference on the electricity price for all low-carbon and a series of technology different premiums on top?
- Are there other models government should consider?
- Should prices be set for individual projects or for technologies
- Do you think there is sufficient competition amongst potential developers/sites to run effective auctions?
- Could an auction contribute to preventing the feed-in tariff policy from incentivising an unsustainable level of deployment of any one particular technology? Are there other ways to mitigate against this risk?

Based on the experience of the NFFO and the AER, we do not think that auctions, however carefully calibrated to take account of those difficulties, are likely to be helpful to the majority of the renewables market. More recent tenders such as that in the Netherlands offshore have been unsuccessful.

They pose considerable development risks, are vulnerable to gaming and can lead to sites becoming sterilised. They only tend to be suitable in jurisdictions where there is very little permitting risk and it is noticeable that when California launched its innovative reverse auction for pv capacity it did so in a capacity band where it knew that there was already grid capacity to allow easy connection. Unfortunately these are not characteristics that readily present themselves in the UK.

Even with large scale plant such as nuclear, offshore wind and clean coal, auctions pose a risk. Such an approach could only be followed we would suggest if Government had definite views on the capacity it would wish to see installed

for these technologies and by when., satisfying itself that there were no permitting risks.

Tenders increase costs and create a diversion for management teams. The experience of PFI suggests that in many cases apparent savings are lost in the process itself. Although one area which could possibly be subject to tenders would be the provision of renewable capacity for government itself – especially if this were combined with the proposals for remote net metering referred to above.

For renewables we suggest that in the initial stages of the new system it would work better if implemented using tariffs flowing from the forthcoming banding review (ideally supplemented by examination of costs in other jurisdictions in Europe to ensure supply distortions are not occurring and that if they are they are understood). There are clearly concerns about the transparency and availability of cost data and it would be possible in consideration for receiving state support to require the provision of cost and operational data in standard format on a confidential basis. Whilst this could be regarded as a burden it is suggested that this information could with appropriate protections be very valuable for both industry and Government in providing cost trend analysis. We also believe it important that Government monitor the cost of renewable energy equipment across Europe to ensure prices are influenced by appropriate market factors rather than the level of tariffs themselves.

Tariffs should vary by technology and for new and emerging technologies should be set at levels to support their deployment. The early stages of the RO had one rate whatever the technology and that led to a hiatus in the development of the plurality of solutions that are needed.

In relation to the risk that too much could be offered of a particular technology or indeed that low carbon capacity is built up from too expensive technologies we suggest that capacity limits to feed in tariff rounds should be set and as in German PV, consideration given to an automatic drop in tariffs when volumes are greater than anticipated thus creating a breathing space whilst prices are re-evaluated.

Should volume build up accelerate then at that stage we suggest that developers be asked to bid a discount on the current price for a further tranche of capacity.

In the case of emerging technologies with relatively high prices we suggest that relatively low initial volumes would be set during the commercialisation period to allow prices to be recalibrated as and when they drop.

### **32. What changes do you think would be necessary to the institutional arrangements in the electricity sector to support these market reforms?**

We have made proposals that an aggregator of renewable electricity be appointed to handle the interface between fixed feed in tariff and the wholesale markets.

**33. Do you have view on how market distortion and any other unintended consequences of a FIT or a targeted capacity mechanism can be minimised?**

We have made proposals at 31 above how mechanisms can be built in to minimise the impact of distortions .

**34. Do you agree with the Government's assessment of the risks of delays to planned investments while the preferred package is implemented?**

We believe that transition should ideally be sooner rather than later. We are aware of the risks posed by change of law clauses in ppa's and in relation to the creation of fixed feed in tariffs have suggested a conversion mechanism that we would hope would avoid such difficulties. This allows a very quick transition creating a unified market. It of course presumes that Government is still willing to consider a fixed feed in tariff system. Some commentators believe that these risks apply even under a CFD or fixed premium tariff.

We believe that further modelling may be required to compare the comparative fortunes of a project electing to proceed under an RO compared to one that does not (other things being equal -and that the implications for the taxpayer /consumer as well as developer should be examined.) There is a considerable danger of unforeseen consequences in preserving two systems especially if the value of the RO is not fixed.

**35. Do you agree with the principles underpinning the transition of the Renewables Obligation into the new arrangements? Are there other strategies which you think could be used to avoid delays to planned investments**

We have suggested that early and swift conversion of existing RO contracts to a fixed feed in tariff format based on the average for the last 3 to 5 years electricity price, lec price, roc price and roc recycle (adjusted by technology band ) paid to generators, ie possibly after rather than before, supplier discounts . We would suggest that the forthcoming banding review would be used to consider whether or not some future reasonably anticipated benefits should be factored into this evaluation but consider that as this approach would include some years at high prices that this approach would not prejudice industry returns and be far simpler than the proposals tabled. This approach could be used to fix the RO as soon as possible after 2017 (see below).

**36. We propose that accreditation under the RO would remain open until 31 March 2017. The Government's ambition to introduce the new feed-in tariff for low-carbon in 2013/14 (subject to Parliamentary time). Which of these options do you favour:**

- All new renewable electricity capacity accrediting before 1 April 2017 accredits under the RO;
- All new renewable electricity capacity accrediting after the introduction of the low-carbon support mechanism but before 1 April 2017 should have a choice between accrediting under the RO or the new mechanism.

We are aware of some nffo 5 projects who are concerned that they will come out of nffo after the April 2017 cut off date which is clearly discriminatory and there may also be other projects with long gestations period that will not make the deadline. Discussion with these projects indicates that there may be serious value implications.

It is suggested that if the pre-conditions to signing a fit are satisfied, at April 2017 or a project happens to be still in nffo at April 2017 then a project should be able to take the RO option even though it has not commenced generation or is still in nffo.

**37. Some technologies are not currently grandfathered under the RO. If the Government chooses not to grandfather some or all of these technologies, should we:**

- Carry out scheduled banding reviews (either separately or as part of the tariff setting for the new scheme)? How frequently should these be carried out?
- Carry out an "early review" if evidence is provided of significant change in costs or other criteria as in legislation?
- Should we move them out of the "vintaged" RO and into the new scheme, removing the potential need for scheduled banding reviews under the RO?

Whilst we believe conversion to a fit is preferable we believe that treatment of such projects should not be discriminatory. Early fixing of the RO price may allow grand-fathering to occur if the sector wishes.

**38. Which option for calculating the Obligation post 2017 do you favour?**

- Continue using both target and headroom
- Use Calculation B (Headroom) only from 2017
- Fix the price of a ROC for existing and new generation

The government has put forward a transition period reflecting the legislative timetable which will have the effect that a very large proportion of the UK's renewable electricity capacity will still be under an RO system whereby the cost to the taxpayer /consumer rises with energy prices and indeed the carbon support mechanism. As a consequence there is the possibility that old RO projects could become more valuable than new feed in tariff projects with the same operational characteristics which could in itself cause market distortions.

This may create moral hazard and political risk for the industry. We therefore consider that the option whereby the price for existing and new RO certificates is

fixed should be fixed or at least capped at some time in the near future. We recognise that this may be unpopular with some developers but we would suggest that the cost to the economy as a whole does need careful consideration.

It is suggested that in making any decision the returns likely to be earned by projects in this category should be considered to ensure adequate returns are earned over a full 20 year period and borrowings are likely to be repaid by affected projects. If it can be demonstrated that disadvantage would result then the position outlined above should be reviewed. It is difficult to see however why the Government should leave the full RO process open for longer than necessary if adequate returns have been earned by developers, especially if in so doing too high subsidies could result. Whilst it is a difficult issue, in circumstances where the industry wishes to speak for a significant proportion of the energy market, it is important that it exercises financial responsibility - especially as the RO has inherent uncertainty priced in.

End

**Contact Details :**

This response is a joint submission from Climate Change Matters and Transform UK.

[REDACTED]

