

Electricity Market Reform – Response to consultation

Element Power is a global renewable energy development group involved in all aspects of the development, financing, construction and operation of wind, solar photovoltaic (“pv”) and other non-fuel and fuel based renewable energy. Established in 2008, the Group has over 9GW of projects under development in over 10 countries, with over 7GW in wind energy and over 1.5GW in solar pv. Element Power are backed by the \$1 billion private equity fund Hudson Clean Energy Partners (“Hudson”) who also invest more broadly in the clean energy sector.

Element Power (and Hudson) are part of the Low Carbon Finance Group, Renewable UK and the REA all of whom have made a separate response to this consultation to which we have contributed. Given our specific interests and opinions, Element Power has decided to make a separate submission to the consultation process. We have over 100 professionals within the Group who have extensive experience spanning many decades in the renewable energy and broader conventional energy sectors. We are willing and able to engage with the DECC during the evaluation period to discuss our response further and expand on any particular areas. Given the conceptual nature of the consultation document we believe that this post-response dialogue is critically important to help support government in designing the detailed rules that will ensure project development and delivery continues and accelerates to reach the 2020 targets, and that the capital is attracted to finance the build out and operation of such projects

General Principles and observations

Before responding to the detailed questions, it is important to consider some key principles, observations and issues to avoid them being lost in the detail or not raised due to the framing of consultation questions.

1. Security of electricity supply has to be assured
 - Whilst cost of achieving this is always an important factor, the costs of failing should also be considered.
 - Exploiting indigenous renewable energy to its fullest extent should be a priority – harnessing the natural resources and in doing so reducing future costs is imperative
 - CCS technology cannot be relied upon and timescales for new nuclear mean that government must act now to encourage all forms of deployable generation

2. Project delivery will take longer and will probably cost more than first anticipated
 - “Low-hanging fruit” is always picked first, which with wind energy means highest resource, most accessible and easiest to permit and access connection to the grid The next generation of projects will be more difficult and not necessarily lower cost
 - Technology and infrastructure investment and development will help counter-balance the impact, but a secure and predictable long term market is required to encourage this investment
 - Offshore wind will not be the panacea that will enable government to reach its targets. Increasing project complexity, supply chain constraints and operational difficulties will limit deployment in the short term.

3. Large scale solar pv should be brought into the low carbon energy mix
 - Solar pv should be supported with sufficient ROC's from April 2012, stepping down every 6 months in line with cost reductions and transitioned to a feed-in tariff from 2103-2017
 - Costs have dropped exponentially, and grid parity is achievable before 2020 if investment is made now
 - It is the simplest form of renewable energy to deploy, and can therefore "plug the gaps" in the inevitable annual shortfalls in the RO and government targets
 - Solar pv generates during daylight peak hours, and complements the intermittency of wind energy
 - Projects are embedded and therefore avoid transmission losses
 - Project lives are 50 years, and therefore the lifetime present value of the 20 year ROC and FIT support should be balanced with the fuel-free benefits over the longer generation life.

4. Renewable energy generated outside of the UK territory and connected directly into the UK grid should be utilised to help reach 2020 targets.
 - Direct connection is necessary to avoid "double-dipping" by benefitting from other support mechanisms outside of the UK.
 - Direct connection would also improve the security of the particular supply
 - Projects would generate and be paid under the relevant UK support mechanism

5. Any Feed-in Tariff mechanism can be made to work, but the principles of the "3-C's" should be maintained to encourage investment: Clarity, Certainty and Confidence
 - Clarity – the more simple the arrangements, the easier it will be to encourage new investment. Investment Committees of investment funds, credit committees of banks and Boards of development businesses will all have to understand the arrangements, but are likely to reject anything that is overly complex and make alternative investments in other countries.
 - Certainty – the FIT arrangements must provide certainty for investment decisions at all stages of a project life-cycle. An investor in development must have visibility on the arrangements that will be in place when the project is ready to build, which could be 4-8 years after commencing. Pre-accreditation of fully developed projects to secure a tariff and protect the project from any changes before financing and construction is critical.
 - Confidence – The £200 billion of investment required by 2020 to secure the UK's electricity supply and meet the government's targets and obligations requires confidence in the arrangements and confidence in the UK government. The action currently being taken by government in respect of the Feed-in Tariff for small scale renewable energy undermines confidence, and is not a helpful backdrop or precedent to set in the midst of this wider review. The lack of any transitional arrangements to acknowledge and protect investments that have been made in good faith compounds this perception of the UK government taking action to

effectively close down market activity that was predictable but apparently outside of what government was expecting. Passing costs through to the customer is a critical feature of any support mechanism to provide confidence in the sustainability of the arrangements. Affordability is also important in ensuring longevity, but government should also take the responsibility of educating the public regarding the need for, and potential costs of, a secure and low carbon generation mix.

6. Appreciating the nature of the different renewable energy technologies and how investment in such projects works is critical in designing the tariff and market arrangements.

- Non-fuel renewable energy (NFRE) such as wind, solar and marine technologies provide significant benefits of an effective hedge against fuel price increases over their lifetime
- NFRE also harnesses the UK's natural resources and improves the security of electricity supply
- However, such NFRE is a price-taker, must generate when the resource is available, and must be paid
- NFRE is unable to take full advantage of dispatching and trading at peak prices and is therefore unable to assume that it will achieve better than average prices. Any support mechanism (such as CfD's) that is designed around such assumption is conceptually flawed and will result in sub-optimal investment and higher cost of capital.

7. If the Renewables Obligation ("RO") is to be abandoned then the design of the transition arrangements into a Feed-in Tariff system are critical

- The RO has been successful and is well understood by market participants
- There exists a liquid bi-lateral PPA market under the RO through which projects are being financed
- A banded RO could survive alongside a FIT for nuclear, which would enable existing projects and new investments to proceed uninterrupted and free from risk of the new system being unworkable
- Assuming the option to retain the RO is not an accepted principle of DECC, the nature by which a transition to a FIT works is critically important
- Retaining the economic benefits anticipated by existing projects (including recycle premiums) must be a feature of the arrangements
- Equally important will be ensuring that none of the changes will trigger any defaults in existing off-take (PPA) and/or debt arrangements, and therefore continuing an effective "RO market" is critical.

8. Market liquidity is fundamental

- Investors and banks financing renewable energy will continue to rely upon long-term bilateral contracts between the generator and electricity supply companies.
- Obligations must remain in place for supply companies to enter into contracts for renewable energy

- The proposed FIT arrangements should be “tested” to ensure that the market for bilateral contracts “responds” in the expected manner

9. Investment in electricity storage

- As noted above, non-dispatchable renewable energy has to be paid for based on output or investment will cease
- The increasing amount of intermittent renewables should be embraced not with constraints but with investment in storage, the most effective of which would be a nationwide network of facilities to charge electric vehicles during periods of highest anticipated generation.

Current Market arrangements (questions 1&2)

- We do not believe that the current market will meet government’s environmental targets nor provide the projects and investment necessary to secure the UK’s energy supplies
- This is not as a result of any failing of the RO, but is more due to
 - The lack of effective “joined-up” policy covering planning and grid infrastructure
 - All of the “eggs” being in a limited number of technology “baskets”
 - A lack of appreciation of the practical difficulties in project deployment and hence timing of project deployment

Feed-in Tariffs (questions 3-11)

- The Government’s rationale for choosing a FIT with CfD is not valid in respect of price-taking, non-dispatchable renewable energy
- Renewable Energy projects must be paid for output not availability, or they will not be financeable
- Investment will be attracted to simplicity and certainty, which favours a Fixed FIT. However, a Fixed FIT does not have the flexibility to respond to price increases of underlying plant etc.
- A FIT with CfD model can be made to work if designed properly, including different indexes for different technologies reflecting the average prices they are likely to experience
- A Premium FIT has the advantage of being closest to the RO and relatively simple to explain, and has the flexibility to respond to increases in plant cost if energy prices are also rising
- A FIT with CfD has the benefit of encouraging investment in the development and construction of projects by government (or the consumer) taking the electricity price risk, although there would be concern regarding the sustainability of this if wholesale prices were at a consistently low level.
- The Governments assessment of the impact of the different models of FIT on the cost of capital is too simplistic. Non-utility investors in renewable energy (pension

funds, banks etc) will typically base their decisions and price capital on the long-term bilateral contract entered into with a supply company in respect of a project. These investors will require a certain degree of price certainty, and therefore the resulting inefficiency is not in the cost of capital but in the ability of supply companies to retain some of the FIT price. This is currently seen in the RO, where suppliers typically retain around 10% of the benefit.

- Liquidity of the market for off-take contracts is a critical part of the overall structure, and the lack of any effective obligations on suppliers is a fundamental flaw in the proposals. This could be addressed by a central buyer of all power under long-term contracts (energy plus CfD or Premium), who would then be responsible for selling power into the market.
- The cost of capital assumptions put forward by Government are significantly understated and do not reflect the rewards required for risks being undertaken which for NFRE are typically:

TYPE OF RISK	IRR (Nominal)
Development <i>(Project inception to financial close)</i>	30%-40%
Investment <i>(equity in geared operating projects)</i>	12%-18%
Senior Debt <i>(non-recourse debt finance)</i>	2.5%-3.5% +LIBOR

- We do not believe that there should be a “one-size-fits-all” solution for all technologies and consideration should be given to different schemes to reflect the nature of the generation
- If a FIT with CfD model is adopted, different indexes should be used for different technologies

Implementation Issues (questions 30-37)

- A key risk in the decision to transition away from the RO is how the changes will impact on existing contractual arrangements. Since the ‘credit crunch’ lending banks will be motivated to exploit any possibility to call a default on existing debt arrangements to enable them to increase debt margins to current rates. The transition arrangements must be designed such that this risk is not present. In this regard advice should be sought from the main lawyers in the renewable energy sector.
- During the transition from the RO to a FIT model, investors in new plants should be able to decide between going into the RO or entering into the FIT arrangements. This should be a one-off and fixed decision at the point of pre-accreditation (see earlier note)
- The use of auctions to set FIT prices should be avoided, or there is a significant risk that investment will stall and projects will not proceed, and therefore an ‘artificial’

market of contracts will exist that will not contribute to targets or energy supply. This will undermine the ability of government to control the rate of deployment and estimate the real cost of the obligations written into contracts

- In transitioning out of the RO , doing so in a way that retains the nature of the existing obligation arrangement but reflecting the generation of plant existing at the 2017 cut-off point and the retirement of projects thereafter is the preferred route
- Government does, however, have to ultimately control deployment under the mechanism introduced. This is effectively achieved under the RO with the supplier obligation and a similar “market” would have to be designed. Alternatively, the use of the central buyer who provided FIT contracts at the relevant price for a specified number of MW’s for each technology would be a mechanism to control deployment. This would require a sufficient lead-in period to set out the replacement arrangements after the MW limit was reached

Conclusion

The consultation process on this critically important issue is welcome, but is conceptual rather than detailed at this stage. The next stage of detailed dialogue to “flesh-out” the responses will be critical in designing arrangements that will protect existing investment, encourage new investment and enable targets to be met. The risk of unwinding all of the positive investment sentiment for renewables for the sake of providing an investment signal for nuclear energy is significant. Investment is already stalling in the market as a result of the uncertainty, so early clarification of key issues and features is essential.

We are available for any further analysis and discussions to help the DECC and government achieve its objectives.

10 March 2011

[Redacted]

[Redacted]



elementpower

1st Floor, 3 Sheldon Square, Paddington Central, London W2 6HY

[Redacted]

Web: www.elpower.com; www.hudsoncep.com