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CRADLE INFRASTRUCTURE¹ Response to Department of Energy & Climate Change (DECC)

'A Call for Evidence for Evidence on Barriers to Securing Long-Term Contracts for Independent Renewable Generation Investment'²

Introduction

The subject consultation correctly identifies that a credit-worthy power purchase agreement (PPA) is a vital component of energy project development because a suitable PPA enables a realistic cost of capital allocation to construction investment. Project Sponsors lacking a balance sheet ie. Independents will, at some point in the development process, need to raise 3rd party capital to meet the large costs of asset construction.

The risks of a PPA are principally *Availability* and *Dispatch*; *Availability* is governed by asset quality; the execution of design, build, operation & maintenance functions. *Dispatch* of power is dictated by the contracted customer base and wider balancing market. Supplier's profit margin from a PPA is the spread between the retail market price obtained from the supplier's customer base and the PPA rate paid in reward to the Project Sponsor for asset *Availability*. Wholesale prices are really only relevant for long-term forecasting issues around demand from the customer base, asset performance or fuel supply problems.

All forms of low-carbon energy require incentives to overcome the financial laws of gravity determined by operational fossil & nuclear assets and the short-term legislative framework. These renewable energy incentives are indiscriminately added onto the retail cost of all electrical power and this in-turn prompts the market to clear at the lowest wholesale prices first. The UK power market's design is therefore akin to a supermarket charging for all goods by weight only; the only incentive is to select the lightest items in the supermarket, and it is worth noting that this selection is performed by a limited number of professional shoppers on behalf of all domestic consumers, who aren't even allowed to enter the supermarket! This 'lightest first' shopping policy for power maximises short-term financial utility, but has no interest in the long-term health of consumers.

¹ *Cradle Infrastructure is focused on developing BioEnergy projects that dispatch power and heat into the UK market. The business has strong links with fuel suppliers, credit-worthy off-takers, high-quality legal representation and global EPC contractors. The Owner has been engaged in BioEnergy development within the UK market since 2010.*

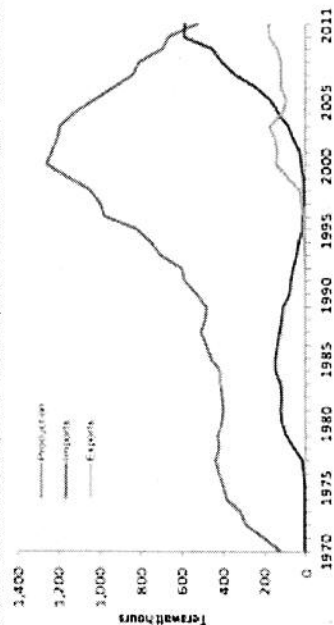
² *Source consultation document available via http://www.decc.gov.uk/en/content/cms/consultations/call_ren_inves/call_ren_inves.aspx*

Factors Affecting PPA Quality & Availability

1. The Grandfathering principle is not robustly legislated within the 2011 Renewable Obligation Order (ROO). Despite much communication on this issue, the contents of section 33 to part 6 of the ROO offers a clear exit point for the Government to reduce incentives in the future³.
2. There is no direct access to retail markets for those unable to assume *Dispatch* risk. This condemns independent Sponsors to seek PPAs from incumbent market-participants ie. those with a customer base. Alternatively, independents can sell their projects before the required construction capital must be raised. Sale will generally be to incumbent market participants⁴.
3. Electricity Market Reform (EMR) legislation confirms, via introduction of the contracts-for-difference feed-in-tariff (Cfd FIT), that the Government believes the ROO means windfall profits for low-carbon generators. The recent ROO Banding Review also confirmed that DECC and HM Treasury are not aligned on the UK's future energy strategy.

These issues create a real and present danger that holding a PPA under the RO means assuming unquantifiable future risks to revenue⁵. On this basis, discounts are being applied now to PPAs so a margin of safety is created or PPA Tenures are too short to secure affordable construction capital⁶.

Chart 4.1.1: Production, imports and exports of natural gas 1970 to 2011



Project finance margins – UK Renewables and Waste

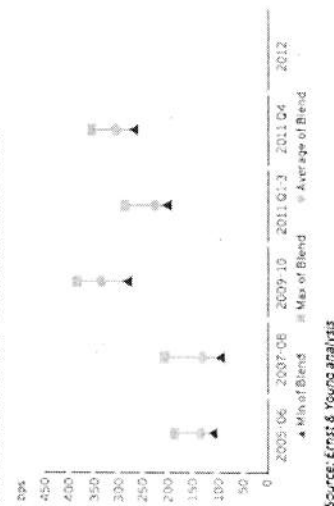
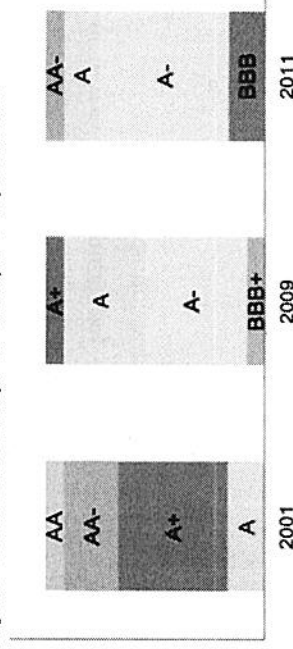


Figure 5: Credit ratings of Europe's top utilities



Source: Standard & Poor's

³ Some Sponsors have managed to secure acceptable long-term PPAs. In the case of BioEnergy, ECO2's Sleaford project is the most recent – and only – example. See <http://www.statkraft.com/presscentre/press-releases/2011/>. This financing was only possible with a significant contribution by Institutional Investors – more on this later.

⁴ OFGEM's never-ending but ineffectual work to improve liquidity is not creating a rush for large corporations to seek market share in UK retail or wholesale power. The 'last mile' from generation to customers still has very high barriers to entry. In this context it is hard to conceive a more toothless publication than the recent update issued by OFGEM on 27th July 2012, available at <http://www.ofgem.gov.uk/Markets/RetMkts/rmr/Pages/rmr.aspx>.

⁵ The recent debate over onshore wind, with yet more reviews to follow shortly, is a case in point <http://www.theengineer.co.uk/1013282.article?ampid=TF01>.

⁶ Cradle Infrastructure's last venture into the PPA market, in Q3 2011, resulted in Centrica (<http://www.centrica.com/index.asp?pageid=1>) discounting wholesale power revenues by 80% to achieve a 10-year Tenure and Smartest Energy (<http://www.smartestenergy.com/Default.aspx>) offering a maximum Tenure of 3 years at a 20% discount! The Cfd FIT compounds the problem by removing most of the trading upside traditionally available to any party who assumes Dispatch risk and is happy to have a proportion of the assets output 'merchantable'. Faced with a clawback of power revenues above the strike price, it is inevitable that PPA holders will discount the available strike price. This discounted revenue stream will become the Availability revenue actually received by the independent Sponsor under the PPA.

PPA Benefits and the Limits of the UK Oligopoly

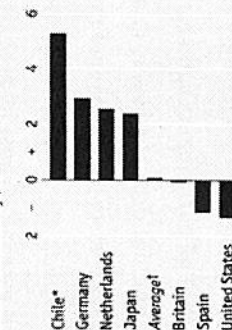
A PPA, if structured correctly, should appear in company accounts as a Lease cost and therefore be immaterial to the credit-rating of the entity holding the PPA. Given that European utilities are experiencing unrelenting downward pressure on their balance sheets⁷, a PPA should be the obvious choice. In reality such rating downgrades are occurring because of multi-jurisdiction uncertainties over asset closures relating to environmental and infrastructure policy⁸, as well as unremittingly gloomy economic scenarios for future demand. Appetite for new projects is therefore severely constrained and the only thing propping up the viability of future projects are government-led targets for low-carbon transition. The UK should not, and cannot⁹, rely on the existing "Bank-Utility" oligopoly to generate the levels of investment, or creativity, required. Unfortunately, the CfD Fit, as currently envisaged, does exactly this¹⁰. The Banks are broken; syndicate sizes, lending margins etc. are all at a pitch that defies any sane forecast for Project-Finance (PF) execution cost / risk. The market has been in this state since 2007¹¹. Furthermore, debt-based PF demands an equity cushion to absorb first losses, which, for independent Sponsors means that a 3rd party entity with the cash, capability and desire to own asset(s) in the UK power market must be identified. Given the current state of market liquidity, debt-based refinancing risk and legislative flux the list of cash-rich non-incumbents willing to take the plunge is not long.

"Although headline investment has tripled over the last decade [in the North Sea], the amount of oil and gas recovered per pound has fallen by two thirds over the same period. This effectively leaves us fighting hard to stand still. Current and planned UK investment must be seen in light of this acute decline in capital efficiency and viewed in a global context – the UK attracts less than 4% of global oil investment."

Malcolm Webb

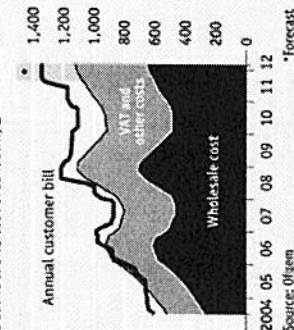
The point of no return

Pension funds' real net investment return 2001-10 annual average, %



Balance of power

Dual-fuel bill, cost breakdown, £

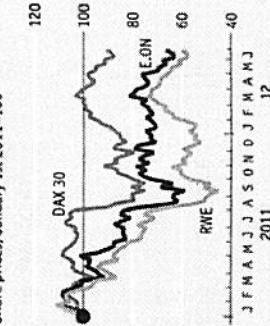


"Insanity is doing the same thing over and over again and expecting a different result"

Rita Mae Brown

Nuclear meltdown

Share prices, January 1st 2011-100



⁷ See Ernst & Young's Renewable Energy Country Attractiveness Index Issues 31 & 32 via <http://www.ey.com/G/L/en/Industries/Oil---Gas/Oil-Gas-Renewable-Energy-Attractiveness-Indices>

⁸ German nuclear power closures, the LCPD, network unbundling, existing equity commitments to project developments, collapse in the EU ETS price etc.

⁹ A key cornerstone of Project Financing was recently shown to have been systematically undermined, with unknown, but presumably far-reaching and long-term consequences for the business health and practices of fractional-reserve banking. Refer to 'The LIBOR Scandal: The Rotten Heart of Finance' by The Economist dated 7th July 2012 and available via <http://www.economist.com/node/2155828>.

¹⁰ Charles Hendry, Minister of State for Department of Energy & Climate Change, letter to Tim Yeo, Chair, Energy & Climate Change Committee explaining payment and legal framework for CfD FIT available via <http://www.decc.gov.uk/en/content/cms/legislation/energybill/2012/energybill2012.aspx>.

¹¹ Many analysts are drawing parallels between trends evident in Western economies and Japan's 'lost decade'. Premature withdrawal of Government fiscal support and insufficient creative destruction of established businesses, where broken balance sheets indicate broken business models and bankruptcy becomes the favoured option. See 'The Global Crash, Japanese Lessons' by The Economist dated 4th August 2012 and available via <http://www.economist.com/node/2155952>.

Policy Recommendations & Benefits

1. The CfD FiT revenue stream should be guaranteed by the UK's national balance sheet, on an *Availability* basis, to all qualifying energy projects¹². The processes to formulate guaranteed strike prices should apply to fossil and low-carbon project Sponsors alike¹³.
2. NGC must act as the 'clearing house' for all available power, across every timescale. All power required for dispatch must be purchased from NGC via an auction process on a take or pay basis¹⁴. The EMR envisages the consumer will, ultimately, pay for the low-carbon transition. With this market design, NGC controls the minimum floor prices for auction of *Available* wholesale power and OfGEM monitors retail power costs. This is the key step in creating the liquidity and transparency necessary for pricing *Dispatch* risk across every technology type.
3. The '*clearing house*' approach means that all participants can be aligned to deliver reduction in energy use, increases in efficiency and enlightened project design. These must be the paramount drivers of value in energy infrastructure; the pivotal market distortion for a low-carbon energy system would be that the number of Megawatts sold remained the dominant benchmark of success.
4. Earning revenue on the basis of asset *Availability* enables 'fixed income' projects to be structured for institutional investors. Poor asset performance remains unrewarded, but access to a vast pool of *equity* investment capital is created to fund construction of energy infrastructure¹⁵.

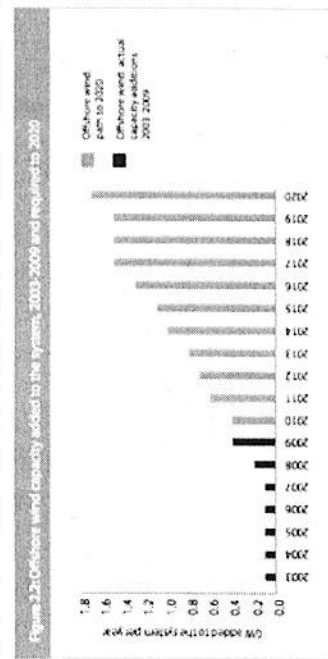


Figure 2.2a: Offshore wind capacity added to the system, 2003-2009 and required to 2020

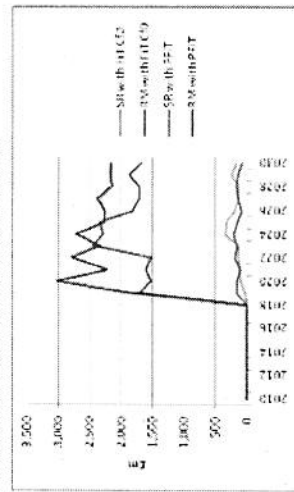


Figure 14: Costs of support for Capacity Mechanisms

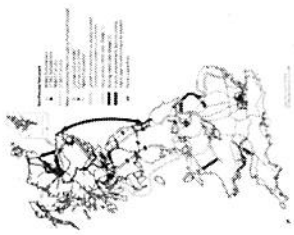


Figure 6: Cost of support for FIT under high/low fossil fuel price scenarios

Source: EMR Redpoint analysis

¹² The House of Commons Energy & Climate Change Committee has already identified this issue, see <http://processengineer.in.th/engineer.co.uk/mips-urge-government-to-rethink-batched-energy-bill/1013239>. Given the huge volume of consultation, professional services input etc. to DECC during the EMR consultation process, as well as NGC's well-developed role in Balancing (Elexon) and Forecasting (Seven Year Statement) it is unthinkable that NGC could not act as an intelligent customer and strike CfD FiT contracts that meet the long-term needs of the UK. Additionally, the long-term carbon plan for the UK is to electrify heat and transport. In this development scenario, how can too much power be placed under contract?

¹³ This proposal is similar to that illustrated by DECC via policy note 'Alternative Model for Contracts for Difference' available via <http://www.decc.gov.uk/en/content/cns/legislation/energybill/2012/energybill2012.aspx> but does not enable the Government to sidestep one of its basic responsibilities; creating the conditions for reliable, safe, accessible power to be made available to its citizens... this central tenet of national governance should not be relegated to the status of a 'shareholder obligation'.

¹⁴ Providing commitment values for auction participation remain sensible in magnitude, this market design enables direct access for community collective purchasing schemes. Such energy buyers are likely to have different priorities on the type, quality, scale etc. of their energy sources, example available at http://www.decc.gov.uk/en/content/cns/news/sos_corwallto/sos_corwallto.aspx.

¹⁵ Access to such funding streams is a stated aim of HM Treasury's National Infrastructure Plan. Principal MoU available via http://www.hm-treasury.gov.uk/foi_mou_2011.htm. Cradle Infrastructure's experience in the market is that 100% construction investment can be raised. This removes the equity injection requirement from a 3rd party under PF, already highlighted within this paper as a major challenge for independent Sponsors and a major reason why projects fall back into the hands of incumbent market players.

Value at Risk Comparisons

The policy recommendations in this note result in a possible exposure of the UK government balance sheet which hinges on NGC's management of the 'gap' between the CfD FIT contracts it strikes for *Availability* and the auctioning of power to suppliers for actual *Dispatch*. The 'cost to consumers' of the CfD FIT was forecast by Redpoint as part of the EMR consultation Impact Assessment¹⁶ and can be applied as a proxy for the potential exposure of the UK balance sheet ie. between £0 & 6.5bn per annum, depending on assumptions used in forecasting. To put this exposure into perspective with other supply-side measures:

- Forecast cost of the EMR Capacity Mechanism is £0-3bn per annum¹⁷.
- £3bn is earmarked for the UK Green Investment Bank (GIB), planned to be set-up as a mezzanine investor for PF of energy infrastructure¹⁸.
- Cost of asset purchases to date by Bank of England under the quantitative easing stimulus programme is £375bn¹⁹.
- £0.5bn tax break recently announced for the UK gas industry²⁰.
- £2.2bn per annum government subsidy for nuclear decommissioning costs²¹.

I hope this note contributes. Contact details supplied with the covering email.

Copy To:

Office for Gas & Electricity Markets.

Ministers, HM Treasury.

Alan Whitehead MP, House of Commons Select Committee on Energy & Climate Change.

¹⁶ Figure 6 on P45 of the IA document dated 12th July 2011 available via http://www.decc.gov.uk/en/content/cms/news/pn11_061/pn11_061.aspx. It should be noted that the Carbon Price Support Mechanism, enacted by HM Treasury, is assumed within these cost impacts ie. Fossil fuels become relatively more expensive because of the guaranteed, and increasing, levy on their use.

¹⁷ Figure 14 on P91 of the IA document dated 12th July 2011 available via http://www.decc.gov.uk/en/content/cms/news/pn11_061/pn11_061.aspx. Under the Availability CfD FIT with NGC it is assumed that the capacity mechanism is not required, since all forms of generation are included in the same market mechanism.

¹⁸ Refer to <http://profeng.com/features/birth-of-a-green-bank>. Non-performing projects will default on the GIB portion of debt before private banks lose out.

¹⁹ August Bank of England Inflation Report, available via <http://www.bankofengland.co.uk/publications/Pages/inflationreport/default.aspx>.

²⁰ Refer to <http://www.telegraph.co.uk/finance/newsbysector/energy/9426618/Centrica-to-create-4000-jobs-following-gas-tax-break.html>

²¹ Total cost of Decommissioning the UK Nuclear Fleet over 25 years £56,000m (2004), which rose to £73,000m (2008) see 'Sustainable Energy Without the Hot Air', - Mackay (2009). Furthermore, The Nuclear Decommissioning Authority Business Plan for 2011/12 FY states costs of £2,889m (x25 = circa £73,000m). This is covered off as £2,022m of direct government funding and £867m of Income (£141m via power sales paid for by UK consumers). UK NDA BP available via <http://www.nda.gov.uk/documents/upload/NDA-Business-Plan-2012-2015.pdf>.

