

INVESTMENT: RISK, RETURN AND THE ROLE OF POLICY

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Issues addressed:

- Introduction to the central role of risk and return in financial decisions
- What do financiers need from the policy environment to reduce risk, and increase returns?
- What types of issues arise from different policy frameworks, how do those affect risks?
- How does policy affect the attractiveness of different investments? Illustrated via issues arising when policy is reviewed (RO Review).

Introduction

This working paper sets out to provide a short introduction to risk and return in making financing and investment decisions in the energy sector, focusing on renewable energy. It will specifically draw on the outcomes of consultation roundtables with financiers on renewable energy policy to illustrate what financiers need from policy to reduce risk and increase returns; what types of issues arise in different policy frameworks; and how policy can affect the attractiveness of different investments. The review of the UK's Renewables Obligation policy provides a useful focal point for illustrating the latter.

1. Finance and Investment

Financing generally falls into three categories: loans - debt; equity - stock or security representing ownership interest in an entity or project; subsidies or grants - money which does not need to be repaid (van Aalst, 2004).

Risk and return are fundamental to private sector finance decisions: how much to lend, to whom and for what, or how much to invest in a company or project. Lenders - banks for example - will focus on the ability of the borrower, or project, to make loan repayments. Equity investors will focus on estimating the risk-adjusted returns – and whether these are commensurate with the risk they are taking putting capital into the endeavour.

Different types of financing have different risk appetites: debt is generally low risk; equity higher risk with its ownership stake, and venture capital for example will invest in 'high risk' start up companies with new technologies, but expect very high returns (indicative 25-30%¹).

Much of the renewables generation, under the Renewables Obligation (RO) in the UK, has been through the large utilities 'on balance sheet', able to take the risks associated with RO system (uncertain ROC value, and the original target ending in 2010 making ROC values after that even more difficult). This requires a strong company with significant asset base, internal cashflow – and where additional debt can be raised against the creditworthiness of the company (O'Brien and

¹ From Presentation 'Perspective on Financing Renewable Energy Projects', September 21, 2004, by Thomas Murley, Director Renewable Energy, HgCapital, to Renewable Energy Finance Forum.

Usher, 2004). It was far more difficult for smaller-scale independent project developers seeking external finance, although this situation is changing now.

Rating agencies such as Standard and Poor's (S&P) have over the last three or four years been assessing renewable energy projects. Generally, they provide credit ratings for companies or projects requiring debt and the rating reflects an assessment of the likelihood of default. This will influence what is regarded as 'investment grade' (above a certain rating: BBB for S&P; Baa for Moody's) - some funds or financing institutions may only be able to invest in entities at or above, investment grade. To rate a project, or provide an analysts opinion on a sector, S&P will examine a range of potential risk factors, including the policy and regulatory environment, discussed further below.

Participants at the finance roundtables were generally renewable energy (RE) financing specialists within the power and utilities, or structured or project finance divisions from banks. Private equity participants included fund managers for specialised RE funds, or larger energy funds with an interest in renewables sector. Fewer from the institutional investor community were involved – ie those managing very large funds including pension funds, often over long time periods. However, it should be said that this segment is increasingly interested in 'clean technology' (energy, waste, water), both in the US and Europe, with some specialised funds emerging. Generally, however, these institutions do not lead investment at the level of individual project activities on the ground².

1.1 Risk and Return

The IEA's World Energy Investment Outlook (IEA, 2003) summarises as follows: "Access to capital depends on the risk and reward profile of the investment concerned, as well as on the availability of financial resources and mechanisms. For the energy sector to attract adequate funding for investment, it must offer term and rates of return which compared favourably with those offered in other sectors, taking into account the different risk profiles." [World Energy Investment Outlook, IEA, 2003, page 65].

The degree and type of risk has consequences for the cost and allocation of capital. Simply put, the higher the risk associated with an investment, the higher the cost of capital and the higher the return required by investors and lenders for taking that risk (IEA, 2003, p66). As capital is mobile, investors and lenders will favour the sector, project, or location where they get the best return.

In 2004, O'Brien and Usher outlined a 'finance continuum' (figure 1, below) for on-grid renewable energy. This provides a picture of the range of actors and sources involved in providing the different forms of capital (and risk management tools such as insurance) from project development through to start up; including gaps and potential responses³. While it is a useful gauge, it should be said that

² See, for example, UNEP Finance Initiative, 'CEO Briefing: Renewable Energy', UNEPFI Climate Change Working Group, June 2004. Available from URL: www.unepfi.net.

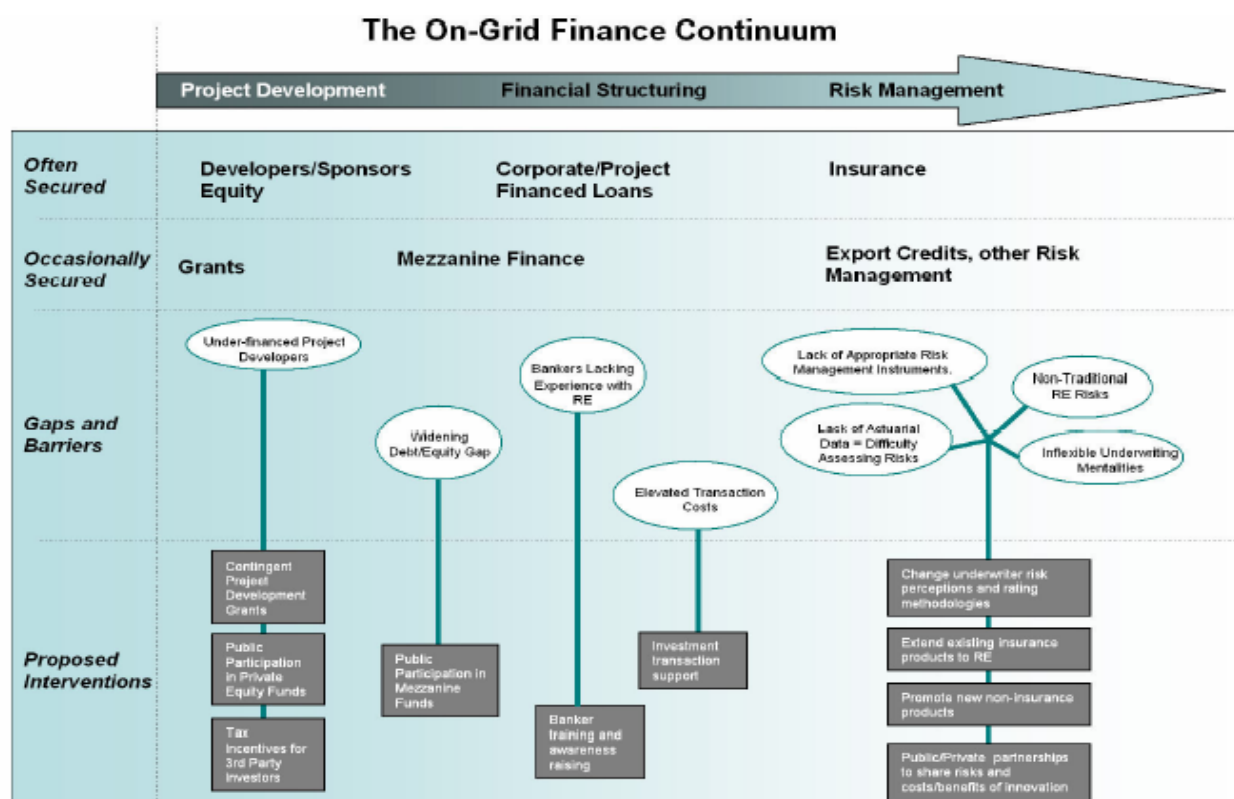
³ The schema proposes solutions which include public sector interventions as this was an official background paper to the International Conference on Renewable Energies, Bonn, 2004.

this is a rapidly changing and maturing market, with a broader set of financial actors now engaging, including, for example, specialised private equity and infrastructure funds looking for small- and medium-sized wind acquisitions across a range of markets⁴. New types of risk mitigation e.g. weather derivatives are also now on offer.

O'Brien and Usher also outline the dynamic interaction between equity and debt in project financing. In a riskier project, higher risk-taking equity will have to play a larger overall role, and project revenues will have to be high enough to sustain the higher cost of finance. Financiers have described a 'gap' in this area: "Structuring finance of renewable energy projects can be difficult (apart from wind power) due to "the funding gap" between the capital the bank is willing to lend under the perceived risks, and the limited amount of equity that the sponsor or developer can provide."⁵ The emergence of specialised private equity funds, as described above, has started to fill this gap.

1.2 Energy Related Risks

Generally, energy related risks include those of a geological, technical, geopolitical, market, fiscal and regulatory nature, and vary by fuel, by the stage of the fuel chain, supply chain and by location (IEA, 2003).



⁴ See, for example, 'Sales close to the wind', Project Finance magazine, March 2005.

⁵ UNEP Finance Initiative, 'CEO Briefing: Renewable Energy', UNEPFI Climate Change Working Group, June 2004. This quote is from the case study of Hypovereinsbank's (HVB) experience with renewables, written with input from Michaela Pulkert, Head of Power and Environment, Global Project Finance, HVB. Available from URL: www.unepfi.net.

Figure 1: O'Brien and Usher, 2004, 'Mobilising Finance for Renewable Energies', p10.

Additionally, energy projects are capital intensive, meaning that large investments are required up front before production or supply can start, and revenues generated; returns are required over a longer period than in many other investments (IEA, 2003).

This means that these types of investments are particularly exposed to financial risks (interest rate, and exchange rate if overseas) as well as policy or regulatory changes, and other factors that may affect returns.

1.2.1 Technical and Project Risk

These risks include: resource quality and reliability; technology risk; construction risk; operational performance; operation and maintenance (O&M) risks.

Financiers will want to put in place responses to issues such as: what can go wrong, what kind of additional costs and delay (also a cost) would this mean, who takes the risk?

Standard & Poor's identifies specific project level risks under its project finance 'analytical methodology' as: the contractual framework; technology; operations; construction; market position; counterparty risk; legal structure; and financial strength⁶. Wind resource risk is a key issue identified by S&P for wind projects, as it can have a very significant impact on revenues, 'cash flow predictability' being a central factor in its project finance rating approach, and the ability for a project to attain investment grade status. 'Wind resources, technology and the regulatory framework' are identified by S&P as 'major credit concerns' specific to wind power projects⁷.

New technologies, including any supply chain issues, will have a higher risk factor until they become 'proven' to the finance community, and build up an operational track record.

To illustrate: the offshore wind industry faces high perceived technology risk. Turbine technology has developed rapidly in the last five years, and while this has improved output and most likely reliability, it still engenders uncertainty, particularly for debt providers that want to know they will get repaid. For example the most recent offshore wind farms in the UK used 3MW Vestas turbines; but new 5MW offshore turbines from German manufacturer Repower have been tested for the last year off the coast of Germany, and two will be

⁶ Presentation by Jan Willem Plantagie, Director and Team Leader for Project Finance and Transport Infrastructure, Standard and Poor's, to the Renewable Energy Finance Forum, London, 22-23 September, 2005.

⁷ 'New Tariff Regime Brightens Horizon for Wind Power in Spain' by Primary Credit Analyst Lidia Polakovic, and Secondary Credit Analyst Jan Willem Plantagie, June 14, 2005. In 'Climate Change Credit Survey, A Study of Emissions Trading, Nuclear Power, And Renewable Energy', November 2005, Standard & Poor's. Available from www.standardandpoors.com/ratingsdirect/

installed at the Beatrice wind farm in the Moray Firth. Risk perception has not been improved by problems in some of the early offshore installations – the 160MW Danish ‘Horns Rev’ wind farm had to repair, onshore, a key component of all 80 Vestas turbines⁸.

Additionally offshore wind faces higher geotechnical and weather risks associated with offshore construction, construction windows (the weather risk for access during construction and O&M), and operations and maintenance (O&M) cost – the need for specialised vessels/cranes. These costs may be ‘relatively large’ in relation to the capital costs of the projects, and expected returns⁹.

A key question is who takes and who pays for these risks? As bankers from Fortis, writing in *Environmental Finance*, state: ‘onshore is cheaper, simpler and proven – why should we be moving the turbines offshore?’: the numbers have to add up for commercial finance. However this threshold is one which is anticipated, with a first project financing of an offshore wind farm (Netherlands or Belgium) forecast to be soon. The introduction of commercial lending would be a ‘huge boost for the industry and should speed the installation of megawatts offshore’, according to Fortis¹⁰.

Financiers are used to dealing with technical factors through existing and the new set of risk management tools that are evolving, such as equipment guarantees and new forms of contracting to better manage construction-related risks, insurance and weather derivatives.

1.2.2 Policy and Regulatory Risk

Government policy, through a variety of support or incentive mechanisms can increase returns or reduce risks. In the case of newer technologies, renewable energy support mechanisms generally aim to increase revenues, improving cashflow, and enable these energy sources to compete for capital with other energy, or alternative, investment options.

However a policy-created market itself poses a risk: policy or regulatory changes resulting from a change in government, or other circumstance, and which is outside the control of project developer or investor. Unlike other more technical risks, these are very difficult to mitigate, yet can undermine revenue streams built into business models, and have a serious impact on projects or firms. This risk is unavoidable at present.

IEA (2003) *World Energy Investment Outlook* emphasises: "The difficulties that many countries will face in monetising financial resources for energy investment in the future will be exacerbated by poor and unpredictable energy policies.

⁸ ‘A new financing horizon?’, by Shane Woodroffe, Director Renewable Energy, and Mark Dennes, Vice-President, US; Fortis Bank. *Environmental Finance* magazine supplement, *Renewables Finance*, September 2006. Available from www.environmental-finance.com.

⁹ ‘The Winds of Change – EPC contracts for offshore wind farms’, April 2006, by Keith Hartley, Partner in the International Construction and Energy Group, Pinsent Masons (UK Law Firm). Available from www.pinsentmasons.com.

¹⁰ See footnote 8, above.

Governments still have an important role to play in creating and maintaining an enabling environment for investment. By minimising policy-induced risk and clarifying economic risk, reforms can reassure equity investors that energy companies will be able to generate a reasonable rate of return. Bankers have to be sure that debts will be serviced." (IEA, 2003, p97)

In its 'Country Attractiveness' index, Ernst & Young assesses a range of factors that are directly relevant to investors assessment of risk and return. Its more than simple market economics, as E&Y states: "The same project, using identical equipment with similar resource characteristics, can provide entirely different financial outcomes in different countries."¹¹ In addition to the actual renewable energy resource quality, factors assessed in the index include:

- electricity market regulatory risk: noting that this may represent a risk as deregulation can exert a downward pressure on wholesale electricity prices which can create a more aggressive trading environment in which some projects may not be able to compete effectively;
- planning and grid connection: the ability to get planning approval and connect to the grid – describing the UK planning system – in 2004 – as 'a disruptive influence' on onshore wind development;
- access to finance: this refers not only to the ease of raising finance in a particular market but also the financeability of a project 'which itself is driven by the structure and stability of the power offtake agreements proposed', noting that 'long-term, guaranteed and economically attractive' PPAs provided by creditworthy entities will make raising finance relatively easy';
- power offtake attractiveness: this looks at factors including the actual price offered for power, the potential price variation it can be subjected to, and the period for which it is granted. In relation to market-based tradable support mechanisms – it is noted that these may alleviate only part of the merchant power risk (unfixed price) by providing a base price independent of electricity prices – this matter was a significant issue during a roundtable discussion with financiers on the RO Review;
- tax climate: including availability of production tax credit (PTC) mechanisms in the US; and penalties on 'brown' power such as the UK's Climate Change Levy;
- grant or soft loan availability: capital grants for example were available to the offshore sector in the UK;
- project size: larger developments are more attractive financially as they have economies of scale; plus financial entities will not consider projects below a certain financial size.

¹¹ "The Rules of Attraction", article by Jonathan Johns and Andrew Perkins of Ernst & Young, providing a background to the Index. In Environmental Finance magazine supplement Renewables Finance, June 2004. Available from www.environmental-finance.com. The Country Attractiveness Index quarterly reports are available via www.ey.com.

Reflecting the impact these factors can have on attaining 'Investment Grade' for wind projects¹², Standard and Poor's (S&P), highlights the importance of:

- planning permission and grid connection
- regulation that is 'clear, consistent and transparent'
- long term policy and regulatory support 'is a must'
- grandfathering of the existing regime.

Government policy and regulation sits alongside wind risk for new projects and the structure and liquidity of the project's financial arrangements, as a key issues.

S&P's mid-2005 analysis of UK wind industry conditions¹³ states that while the extension of the RO to 2015, and Ofgem's capital allowance for grid improvements, are positive, it highlights uncertainty over planning requirements, infrastructure, and grid access costs. On the latter it considers grid upgrades to be 'critical' for delivering the 2010 target. Furthermore the need for offshore to go ahead to meet government targets is recognised with a number of issues identified including planning issues (aviation and military), as well as cost and availability of grid connections. Its summary view is that solving the constraining factors and 'ongoing, clear and public support for the sector' from the U.K. government 'is vital to the success of the plans (meeting targets).'

A key issue arising from the assessment of risk – whatever the appetite of the entity involved – is that it is a complex overall package that will produce the final decision of whether to proceed with investment or not. Policy delays in one area – e.g. transmission-related factors in the UK – may be a decisive factor, *when taken together* with a set of other policy and project related matters, in whether and when concrete is poured. The importance of the 'overall package' of policy and regulation was strongly emphasised in a roundtable with financiers discussing the RO Review¹⁴.

2. Role of Policy to Reduce Risks and Increase Returns

The IEA's 2003 World Energy Investment Outlook states: "Financing investment in renewable electricity plants...will be very much subject to the pace of the future decline in their capital costs, relative to those of fossil fuel-based power plants, and to the electricity price. Governments almost certainly have to

¹² Presentation by Jan Willem Plantagie, Director and Team Leader for Project Finance and Transport Infrastructure, Standard and Poor's, to the Renewable Energy Finance Forum, London, 22-23 September, 2005.

¹³ 'U.K. Wind Power Framework Is Improving But Clouds Remain On The Horizon', by Primary Credit Analyst Magdalena Richardson, and Secondary Credit Analyst Jan Willem Plantagie, June 6, 2005. In 'Climate Change Credit Survey, A Study of Emissions Trading, Nuclear Power, And Renewable Energy', November 2005, Standard & Poor's. Available from www.standardandpoors.com/ratingsdirect/

¹⁴ The roundtable was organised, by the author of this paper, at Chatham House, as part of a RE Finance-Policy Project. It took place November 28, 2006.

intervene to ensure adequate returns to investment through pricing measures and various incentives...." (IEA, 2003, p92).

It further states that governments will have to adopt "vigorous incentive strategies" to achieve scale up of renewables investment, consistent with its then 'Alternative Policy Scenario' (IEA, 2003, p407).

Making those incentive strategies function from a private sector investment perspective is therefore key to attracting capital into new or emerging 'technology' sectors – whether renewable energy or not. There is strong and growing interest in renewable energy within the finance sector as illustrated by substantial and growing attendance at conferences such as the annual Renewable Energy Finance Forum (London and New York), from mainstream, large financial entities as well as a growing number of private equity funds, and others. However, projects have to be 'bankable' for the money to flow: the numbers have to produce returns which are sufficiently attractive for the different players involved.

Financiers consulted in 2004 over characteristics of renewable energy policy that could accelerate investment in the sector, both in OECD and emerging markets, concluded that to be effective the policy environment needed to be 'loud, long and legal'¹⁵:

"Strength, clarity, and stability are decisive characteristics of the policy environment that attracts capital to renewable energy: that environment must be specific enough to improve the bankability of projects and provide conditions for steady market growth in the renewables sector. An effective policy framework must be 'loud, long, and legal':

- **Loud** - the signal to the market, through incentive structures or other means, needs to be 'loud' and clear to attract capital into the sector
- **Long** - rules and incentives need to be stable and sustained for a duration that reflects the financing horizons of the projects
- **Legal** - a legally established regulatory framework based around binding targets or implementation mechanisms is needed to provide the basis for long-life capital-intensive investments.

It is important to note that at the early stage of development of the newer renewable energy technologies, supplementary incentives that support technology innovation are required in order to provide an environment that rewards entrepreneurial activity."

(Finance Sector Statement to the International Conference on Renewable Energies, Bonn 2004; in van Aalst, 2004; Hamilton, 2005).

While this 'long, loud and legal' descriptive is rather general, it embodies core policy factors that are aimed at increasing returns (loud), while reducing the risk inherent in a policy-led market (legal).

¹⁵ The consultation roundtables took place in London and Basel, April 2004. In London, they were organised by the author of this Working Paper through the UK Business Council for Sustainable Energy in collaboration with Chatham House; and in Basel by UNEP's Sustainable Energy Finance Initiative, SEFI, <http://www.sefi.unep.org>. See Hamilton, 2005.

As one US financial consultant interviewed at the time stated, “policies must affect cashflow if businesses are expected to respond”. Policy based upon political “aims” is in effect asking investors to speculate about political delivery and that speculation, in finance terms, will demand high or even venture capital level returns, making these technologies even less attractive.”¹⁶

Financiers themselves are clear on the need for policy stability covering the duration over which they are looking for returns (i.e. returns which could be affected by policy change). While this is true for the energy sector more generally, it is particularly acute in policy-created markets including in the renewables sector, as was clear from the Standard & Poor’s assessment of credit risk issues for wind power projects, discussed above.

For example, the highest priority ‘lessons’ that HVB and ANZ banks state from their renewables experience were: ‘Banks need greater regulatory certainty to make long-term financial commitments’, and ‘A stable regulatory regime is essential to enable domestic renewable technologies to operate effectively’ - From a 2004 UNEP Finance Initiative briefing on renewable energy¹⁷.

GE Energy Financial Services summarised this as: ‘Great opportunity but long-term policy needed’ in a presentation to the Renewable Energy Finance Forum conference in New York in 2005¹⁸. The ‘on again, off again’ US Production Tax Credit (PTC) support mechanism for wind and other renewables illustrates a marked ‘bunching up’ of reaction disrupting the entire wind turbine supply chain¹⁹.

The simple message from the OECD finance roundtable on policy stability was: “pick a system and stick to it”.

The IEA highlights that fair and transparent enforcement is also important for confidence in the policy regime: “The risk-reward profile of a project can be substantially improved by clarifying the rules of the game and assuring the stability and enforcement of relevant policies.” (IEA, 2003, p97).

This seems less relevant in an OECD context where the legal and contractual systems are strong. However, it does raise the interesting counterpoint: the decision by the UK government on whether to act such that its 2010 Renewables Obligation (RO) target will be met. If the UK government looks like it won’t do so, the overall policy will start to lack credibility, which then creates uncertainty as financiers will expect government to step in to make changes, at some point.

¹⁶ Pers comm. Tom Lord, then managing partner of the Distributed Energy Financial Group, US, June 2004, see article in *Renewable Energy World*, September–October 2004.

¹⁷ UNEP Finance Initiative, ‘CEO Briefing: Renewable Energy’, UNEPFI Climate Change Working Group, June 2004. Available from URL: www.unepfi.net.

¹⁸ Presentation by Kevin Walsh, Managing Director, Renewable Energy, GE Energy Financial Services, to the ‘wind finance’ section of the Renewable Energy Finance Forum, June 21, 2005, New York.

¹⁹ See, for example, ‘The US wind industry is in the middle of an unprecedented boom, so why are its leading players so nervous?’, by Chris Gadowski, Project Finance Magazine, June 2005.

This point was also raised at the 2005 finance roundtable on the Review of the EU 'Renewables Directive'²⁰: a policy which is not delivering suitable market stimulus, raises doubt as to whether political commitment to achieving stated objectives can be maintained.

However, policy review, or new policy, should not destroy the value of existing investments in renewable energy, as this sends a particularly damaging signal to investors at this stage in market development. The detrimental impact of stop-start policies, such as the vagaries of the Production Tax Credit in the US, is also widely recognised.

A summary of general "good policy" and market characteristics from the 2004 OECD finance roundtable (Hamilton, 2005), included:

- a solid basis for long-term contracts, or a legal regime, to secure revenue over a 10–15-year period;
- conditions that lead to big, liquid markets, if using tradable market incentives, with credible market players that can deliver the projects;
- ensuring oligopoly or monopoly control of access is not a barrier, and that network codes are consistent with a move to distributed and renewable generation;
- implementing a clear process for the planning and approval of new power plants and generation, including a preference for renewable-energy options: a framework setting out a more uniform process, involving local planning authorities, would reduce development risk such as that experienced by onshore wind projects in some countries;
- an expedited process for tackling "future" grid infrastructure and investment matters, including who pays, and issues related to balancing, security, distributed generation, to ensure these issues do not become a barrier to project investment and delivery;
- tackling existing subsidies, and other distortions in the market that favour conventional fuel sources, these are an issue for some markets in terms of creating an additional barrier to the perceived competitiveness of renewables; and
- a strong compliance regime, where relevant, including penalties for non-delivery.

Another general point is clarity on the underlying objective of renewables policy. This issue arose at both the finance roundtable on the 2005 EU-focused roundtable, and at the roundtable on the RO Review (November 2006). Unsurprisingly, at a point of review or change, investors want to understand what are the fundamentals that are driving policy, how will it evolve, what is government committed to achieving: is it about carbon longer term; about simply meeting targeted volumes whatever technology is used; about diversity of supply options and 'bringing forward' new technologies?

²⁰ This is Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market, commonly referred to as the RES-E Directive.

This would also be relevant for energy policy more generally: conflicting objectives increase risk or delay investment as it leaves the investor to 'guess' where the priority lies or waiting for one of the 'pieces' to be further defined (for example, EU Emissions Trading Scheme caps post-2012, see Sullivan and Blyth, 2006).

At one finance roundtable it was noted that renewable energy support schemes are essentially a 'correction mechanism' with respect to the economics of renewable energy under the existing regulatory or market regimes, many with barriers and distortions. Attention needs to be paid, therefore, to the underlying regimes and how they impact on the attractiveness of the renewables sector.

2.1 Issues Arising in Different Policy Frameworks:

Some points of comparison between the German and UK systems

At the finance roundtable in 2005 on the EU review of its Renewables Directive the relative merits and challenges of the UK's RO scheme and the German feed-in fixed tariff incentive were discussed, with a considerably more nuanced perception of issues. Below is a summary of key points:

UK market (Renewable Obligation Certificate):

- The relative sophistication of the RO involves investors having to take a 'future' view of different elements (e.g. value of recycling fund) to arrive at the value of the ROC. These price uncertainties are currently driving investment into the arena of strong sponsors that can both manage this risk and access the necessary level of capital - the bigger utilities. This was explained in more detail in a 2003 survey of investor attitudes to the RO, a year or so after its introduction. An independent wind developer stated: *'Longer term PPAs are hard to obtain....The result is that small developers struggle to gear projects higher than 70%, well below target gearing of 80-85% they need to justify returns..'* (Carbon Trust, 2003).
- Market growth more generally has been steady and the regime has driven investment towards good quality wind sites with good output (i.e. strong revenue).
- 'One size fits all' pricing in the ROC market has created a strong incentive for mature and lower cost technologies, and does not foster uptake of new or more expensive technologies. Some see a 'gap in economics' for offshore wind, which in turn is raising questions about both the attainment of the 2010 goal, and the need for additional support or modification to ensure a diversified portfolio in the marketplace. At least one view was expressed that the Renewables Obligation is not yet working properly. A Review is now underway (see below for discussion).
- On offshore wind specifically, there is interest from banks and fund managers, they will be looking for: performance of the first round of offshore wind projects; higher returns; offtake contracts or some kind of security of revenue; and the issue of capital grants for

Round Two to make the financing equation work. The Carbon Trust 2003 survey, one project financier explained: "...We need to offload market risk on ROCs and trading risk, and won't back any project where there remains technology risk."

- In general, there is money and interest in UK renewable energy investment, but not enough 'decent sized' projects (roughly, over 50MW) with attractive enough returns coming forward, at a scale to interest commercial banks.
- In the 2006 finance roundtable on the RO Review, the lack of resolution on key grid issues particularly for offshore, and planning issues were emphasised as key blocks to higher deal flow in the UK.

German market (feed-in tariff):

- Fixed-tariffs, over a clear timeframe, provide certainty of income – a key issue for investors – reflected in the number of deals done, and have encouraged entrepreneurs and smaller scale investors to enter the market; differentiated tariff incentives by technology has promoted diversification.
- During the 2004 roundtable, 'below the line' local and national tax issues, together with planning complexities, were noted.
- Development of 'low quality' wind sites that attain commercially viability because of the feed-in tariff, has occurred. Although financiers prefer the clear price structure, there is a concern that if the output is too low (e.g. 15% capacity factor) this will not be sustainable for the sector in the long term – raising the prospect of public or political pressure for change due to unacceptable cost.
- Risk associated with regular government review of tariff premiums is an important issue. A six month 'chill' on investment occurred during a recent German tariff review²¹.

In its overview of key country issues, Ernst and Young indicate that Spain's approach allows adoption of fixed and premium pricing options (premium addition to variable electricity prices) and has produced strong onshore wind growth²². The electricity price element retains some market risk, together with political risk of regular tariff review (now being brought to bear as a tariff 'reform' is underway)

However, in Greece high tariff levels have not translated into large scale deployment of renewables. A complex permitting process (requiring agreement of up to 35 institutions) and limited grid capacity have been major barriers. In the 2006 finance roundtable in London it was said that the cost of capital goes up for every six months of delay to project start up, as a result of loss of anticipated revenues.

²¹ Pers comm, German bank, November 2006.

²² This, and the Greek example, are taken from an Ernst & Young presentation 'Renewable Energies in the EU, Key success factors for renewable energy development and financing', to a seminar of the same name, October 12, 200. This was under the OPTRES (Assessment and optimisation of renewable support schemes in the European electricity market) project. Presentation available from URL: <http://www.optres.fhg.de/>

In a number of markets one financier noted equally significant, if not greater constraints, have been (a) infrastructure (grid) constraints and (b) the planning process. Policy initiatives need to address these issues in conjunction with financial support mechanisms in order to allow investment to follow market signals.

As the matter of greater 'harmonisation' of support mechanisms across the EU was on the agenda in Brussels, this matter too was raised. It was noted that adopting an EU-wide market-based system could provide size and liquidity in the marketplace that would attract greater trading interest and activity, as well as reduce country-specific policy uncertainty. This would also allow greater price hedging into the future.

However, transition issues are key to retaining investor confidence: as such a move could involve a significant change to existing policy, with potential to negatively impact existing RE investments. Any transition to an EU-wide support system, would therefore require a straightforward, clearly defined process to ensure there was no market disruption due to uncertainty. At that time, finance sector participants could not envisage a transition taking place in such a manner.

2.2 UK Renewables Obligation Review: policy risk in action

An important aspect of understanding risk issues in a policy-led market is to observe the impact when policy risk itself is brought about. Any potential shift in the system, with unknown factors, will cause uncertainty and increase risk to cashflows. The Review of the UK's Renewables Obligation, partly due to some of the issues raised above was the subject of a finance roundtable in November 2006²³, and provides an example of the impact of just the announcement of the Review.

Several aspects of the existing RO scheme are under consideration. October 2006 proposals include: a shift to technology 'banding' where different technologies would be eligible for a multiple or part of one ROC/MWh, essentially enabling a higher ROC value for offshore wind. However, the overall number of ROCs would remain the same, raising questions on how decisions will be made as to how many ROCs will be available at which banding level, increasing the market risk inherent in already variable ROC values.

Three examples of investor reaction in the two months since the consultation was launched:

1. One banker from a non-UK bank focused on deal flow, said that attention span in head office gets noticeably shorter if – after a comparatively complex description of the UK policy and regulatory system around the RO – an additional line has to be added saying it is under review. One clear impact is that until

²³ This was under the auspices of Chatham House and the British Wind Energy Association, and is part of a RE Finance-Policy Project at Chatham House being established, for a year (06-07), by this author.

decisions are made, the UK becomes less attractive as a place to put capital into the RE sector, with several European countries and the US being seen as offering greater deal flow and opportunity.

2. Lack of clarity over the date when grandfathering provisions will start, and the definition of eligible projects is causing serious concern, as financiers assess implications for existing projects under development (mainly onshore wind). These uncertainties are translating to a situation where offtakers are reluctant to agree PPAs with a 'longstop date' (a final expiry date for the PPA) beyond March 2009 – an expected, but not set, deadline for the new regime to start. Offtakers don't want to be left with the risk that the ROC value falls. A shortened longstop date, in turn, can affect access to finance given the importance of the PPA in providing income security (in a system with variable prices), coupled with the lengthy time period required to get through planning process in the UK. If PPAs can't be closed on acceptable terms, this could cause a serious bottleneck for current onshore wind projects in the pipeline²⁴.

3. Notwithstanding the overall subsidy in the RO out to 2027 (estimated at £42 billion), one financier noted that the whole market is 'slowing down considerably', as result of the RO Review – with particular implications for independent wind project developers. The Review comes at a time when developers are facing pressures from external factors: a profit squeeze from higher costs, in particular turbine costs due to supply chain bottlenecks, and are likely to put projects on hold in the UK until profit margins improve, before seeking finance. As was explained, finance depends on reliability and on legal agreements, and given uncertainty in ROC values, the PPA is key – equity investors can take quite a lot of risk, but all the elements of the equation need to add up for both the finance and developers before projects can go ahead.

A final important point, of relevance to the way energy policy is developed, was the stated need for greater integration of the RO Review with other elements of policy development: offshore transmission; distribution, planning, the Climate Change Bill, and other strategic issues. These elements need to be considered together, as they all impact the investment environment and have the potential to affect returns.

²⁴ A PPA will be signed from the expected completion of a project; the longstop date allows an additional period –generally 12 months or more – before the PPA expires thereby allowing for some delay to start-up without affecting the PPA. For example, a project due to be completed in July 2008 may seek a longstop date of July 2009 in its PPA at the agreed price; however the offtaker may be reluctant to offer a longstop date beyond March 2009 ie only 8 months – to avoid facing a shortfall if ROC values fall. This may then make project finance difficult to access.

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