

## LK Shields Solicitors eAlert

### THE GREEN ECONOMY AND WHAT THE FUTURE HOLDS

#### INTRODUCTION

As a nation we need to focus on being the best in certain areas and exploiting areas where we have a comparative advantage. In the 1950's it was agriculture, but in 2011 it can be seen to be wind and tidal energy.

The green economy does not, however, just involve energy production, but includes an overall mix of technologies in the areas of energy, waste, water and transport.

#### WHAT IS THE GREEN ECONOMY?

Forfás has estimated the value of the green economy to be in the region of €2.8 billion, with over 6,000 employed in the sector.

The key subsectors are:

- Renewable energy technology making use of wind, water, biomass, biofuels, geothermal and solar resources.
- Clean technologies - those that reduce energy consumption and emissions.
- Pollution and emissions control.
- Waste management and recycling.
- Energy management including eco construction.
- Water/wastewater treatment systems upgrade.
- Environmental services and other green technologies.

At an international level, sectors seen to have the highest growth potential are clean technology and renewable energy technology. Ireland has proven skill sets to perform in this area with the right training and incentives.

#### THE NEED FOR A GREEN ECONOMY AND SOME DRIVERS

##### Fuel Prices

The market in 2004 for oil was US\$30 a barrel, rising to US\$140 a barrel in July 2008, falling back in 2010 to US\$80 a barrel with a recent spike in 2011 to US\$110 a barrel. That is roughly a fourfold increase in 8 years, even with a global recession.

Whilst global demand may have fallen, there is no denying there is a limited supply of oil and gas which will ultimately drive up prices. Many economists argue that the cost of delivering oil and gas from some locations is just not economically feasible. They say that it is

obvious that any process that returns less energy than is put into its extraction is not sustainable in the long term. We do, however, acknowledge that shale gas may be an important fuel source in the future and may plug the gaps, so to speak, in fossil fuels.

Energy costs in the Irish market place are in the main higher than the European average, especially for electricity to large scale users. This can now be seen in that electricity and gas suppliers have to provide the information necessary to comply with Community Decision (2007/394/EC) amending Directive 90/337/EEC so that European comparisons can be made. Indeed, the current LEU Rebate System was introduced to ameliorate some of these high electricity costs for large scale end users.

Our grid is being updated which puts further costs on consumers in terms of public service obligations. Also, the level of VAT on fuel is higher than in many other states which consumers, unlike businesses, cannot recover. Obviously, there are social concerns for those on low incomes, but also concerns for Ireland as a place to do business. The hope is that green energy produced in Ireland will in the long term reduce fuel prices.

#### Legislative Drivers

In March 2007, European leaders signed up to a binding European wide target to source 20% of their energy needs from renewable sources by 2020. Ireland's individual target for 2020 (under the Renewables Directive) is 16%. The previous Fianna Fáil/Green Government had set the ambitious target of 40% of electricity generation to come from renewable sources by 2020. However, the new programme for government for Fine Gael/Labour talks about a new Climate Bill with less strenuous emission reduction targets in line with EU 2020 targets. Nevertheless, the green economy is set to be a key driver of the economic recovery, future growth and development of Ireland.

Other important pieces of legislation act as drivers such as compliance with EU Environmental Directives and Regulations (for example, the Integrated Pollution Prevention Control, Waste Electrical and Electronic Equipment, Restriction on Hazardous Substances, Energy End User Efficiency and Energy Services, and Water Framework Directives). The strategic implementation of impending EU and International environmental legislation will play an important role in developing markets for indigenous green companies and creating first mover advantages.



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### State Supports

Of course a green economy does not just focus on reducing costs of fuel. It also focuses on reductions in consumption. Government grants for retrofitting premises and the recently published National Retrofit Programme will also have a role to play. Also, green consumerism coupled with these state supports will, we believe, be a driver of the green economy.

There is also a potential to use future revenues from carbon taxes and the EU Emissions Trading Systems Scheme to fund State backed energy efficiency and green economy initiatives.

Green stimulus packages have been introduced in several other jurisdictions at government level showing the strategic importance of the green economy. The Obama administration's American Recovery and Reinvestment Act of 2009 set aside US\$38 billion for the energy sector and included US\$20 billion in tax incentives. In the US investment in clean technology lags only behind ICT and biotechnology as an investment sector.

Renewable energy feed-in tariffs ("REFITs") are one of the key supports in Ireland where a purchaser of power from certain renewables is paid 15% of the following reference prices. For onshore wind it is in the region of €57 per MW. In 2009, the government introduced substantial new REFITs: for biomass at a rate of €120 per MW; for offshore wind at a rate of €140 per MW; and for tidal and wave at a rate of €220 per MW.

We believe that for offshore wind energy the REFIT level of support is possibly not high enough to get that industry off the ground in a meaningful way. It may well be that the policy decision at the time was to develop onshore wind over offshore as a more cost competitive approach to developing wind energy. However, REFIT is under review again as to an extension of its application beyond 2025 and there is current market uncertainty until this is clarified. This is causing considerable difficulties for Gate 3 windfarms and their bankers.

Research and development tax credits, in particular for the renewables sector, which arises from eligible expenditure that can be offset against a company's corporation tax liability, are also in place.

An accelerated capital allowances scheme for energy-efficient equipment is administered by Sustainable Energy Ireland. This targets the use of equipment, such as electric or alternative-fuel vehicles, by allowing 100% capital allowances for the first year in which expenditure is made.

There is now greater scope to support energy companies and windfarms to raise equity finance under the new Employment and Incentive Scheme which replaces the previous BES scheme. The

level of investment has increased to €10million per company with a maximum investment of €2.5 million per annum. One of the key changes is that the new scheme is expected to relax the requirements as to periods of trading and provide that a green energy company is trading on application for a grid connection agreement (previously four months actual energy trading was required under BES).

### WHO ARE THE PLAYERS IN IRELAND

There are a small number of major players in Ireland such as ESB, Bord Gáis, Bord Na Mona, Endesa, Viridian, Coillte, SSE and others. Though under the Fine Gael/Labour new programmes for government it may well be that some of the assets of ESB and Bord Gáis are sold as part of the government plan to raise €2 billion from the sale of non strategic state assets.

NTR owns waste management firm Greenstar, water treatment joint venture Celtic Anglian Water and a number of solar, wind and biofuel companies in the USA.

Viridian, Endesa, Vayu and Scottish and Southern Energy are active in electricity purchase and supply.

One51 owns Cedar and Techrec and has investments in companies such as Island Renewable Energy Limited.

DCC owns Enva and other firms such as Glen Dimplex and Kingspan.

A number of subsidiaries of UK and EU parent companies, such as Dalkia and Siemens, are competing in key sectors such as environmental consultancy and energy management.

ESB, via their Novus Modus Fund, will be investing €200 million in small scale projects which promote energy efficiency one of its investments being in new light bulb technologies. BGE is also active in this area and has looked at investing in a number of start up energy companies. It most recently completed investments in wave and tidal energy companies Wavebob and Open Hydro.

Brokerage houses such as NCB have been able to raise funds for certain energy development companies such as Geothermal Energy Limited. There was also a market appetite for investment in Mainstream which is developing large scale wind farms abroad.

### LESSONS FROM OUR EXPERIENCE IN THE RENEWABLES SECTOR

#### Wind

Our wind blows stronger for longer than in most other countries. There is 3,500 MW of onshore wind either already developed or in planning. Offshore wind could provide a further 7,100 MW. We have wave and tidal resources which will play an important role for

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us in the future. Between them these resources could give us well over the Government target of 40% of our energy coming from renewable resources. We are not used to the idea that this nation could be energy rich. Gas is the main fuel used in our conventional power plant, wind can help give us more security of supply. Whilst we have already hit our 2010 wind targets, we can do better. As can be seen from the Gate 3 application process, there are a large number of entities who want to build out windfarms ranging from large scale 30-50 MW wind farms to smaller 5 MW wind farms. Almost all of this development has been onshore to date; some traditional wind farm developers feel no need to develop offshore with our relatively unpopulated Western seaboard.

The Government is well aware of the myriad of issues affecting rollout including planning delays and grid connection issues. Another problem is funding. Banks simply are not funding enough unless there are well established players with track records such as large scale utilities or wind farm promoters who have a history of developing wind farms. Small scale wind farms are having difficulties with funding and some of our clients in that space are banking with ethical banks such as Triodos to avail of funds. Those who applied under Gate 3 with planning permission, etc. have now recently received calls from the grid operator to pay grid connection deposits and this will be the proof of whether they are going to proceed.

We believe that the market will become increasingly homogenised, with a lot of developers not proceeding to development once they have got past the planning permission stage / grid connection stage and will flip on projects to large scale utilities and other players who have the financial muscle and skill set to bring wind projects to completion. We acted in the sale of a developed 38MW wind farm to one of the larger utility companies an example of such homogenisation.

We believe this is ultimately the correct route where the market favours large scale windfarm operators. This is the future, but the future will also need to support micro generation which we believe is a possible growth area linked to community based energy systems. With regard to prices paid for wind farms, there are currently issues in the financial modelling. The SEM prices fluctuate as do wind speeds over time and even with the REFIT support system financial models may not always be as positive as they were originally expected to be. Furthermore, there is uncertainty in the market about constraint and curtailment payments.

Grid connections are still a major issue, we are conscious that Eirgrid and ESB networks are working on this, but the process is slow. This goes back to a failure by the State to invest in infrastructure.

Also, there should be a review of the conditions for eligibility and application for the Strategic Infrastructure Act (the "Act"). Under the Gate 3 process, only three applications for onshore wind meet the Act's criteria (wind farms of over 100 MWs), we would argue that there should be a lower threshold for wind farm approval under the Act which takes matters out of the normal planning process. Also, lock in for wind turbines to planning permission is not perfect, i.e. that you must specify the type of turbines to be used at the planning application stage which can make it difficult to change turbine suppliers later on.

It is easy to be critical, but from a fledgling industry 10 years ago, the introduction of the REFIT support system and the SEM, the IWEA and all players deserve praise as to where we have gotten to now, but given the importance of security of energy greater efforts need to be made on the roll out of windfarms.

We are also seeing quite a lot of strategic investment in wind farms abroad. Mainstream is investing in a 400 MW wind farm pipeline in Chile. We have lower profile clients who have put together consortiums of investors to invest in windfarms in the USA, Portugal and Bulgaria. It appears easier to develop large scale wind farms of 100 MW or more in these jurisdictions. Indeed, part of Airtricity's success was its offshore windfarm portfolio. Some of the promoters of wind farms in Ireland we have acted for in the past are now looking at windfarm developments in North Africa.

Whilst wind turbine design and manufacturing is possibly going to remain the preserve of large scale global players such as Siemens, GE, Vestas and Nordex, opportunities for Ireland primarily arise from technology driven companies which can provide more efficient and innovative mechanical and software based components for wind turbine design and manufacture (such as software systems). Indeed, one of our clients is working on improved wind turbine efficiency which if successful would be a patented technology which could be sold to these large scale players.

We do believe that there will be some solution to storing electricity in the future and we have clients who have invested in electricity storage technologies. There may well be in the future an ability to harness night time wind energy to power electric cars during the day time.

### **District Heating Schemes / Geothermal Energy**

One could argue that historically such schemes do not have a good reputation in countries such as Russia because of inefficiency in connection with poor quality boilers and old piping and poorly insulated networks. However, technology has been improving to make them more cost efficient.

It may well be that financially individual power generation units at each home are the most efficient in terms of cost, however, the use



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of renewables to power individual homes is not efficient in terms of size and scale. For example, bio mass woodchips are not that easy to get into domestic city houses. Accordingly, to use such renewable products to provide heating, large scale CHP (combined heat and power) plants will be necessary to heat and provide hot water to a cluster of homes. We believe that district heating schemes have a key role to play in the Green economy. We have done work with Geothermal Energy Limited on deep geothermal energy. This is using water heated from approximately two kilometres down to provide heating. Simply put, one puts down a pipe, brings up the water, extracts the heating and re-injects the water. Geothermal Energy is one of the first in the British Isles to be bringing this model to market and we believe it will have a key role to play in the overall mix of renewables in the green economy. Indeed, they have already recently completed a funding round by NCB.

There have been a number of legislative issues here to set the ground work for such schemes which we have been working on with the Department of Communications, Energy and Natural Resources and a draft Bill is now being prepared by that Department. Indeed we are now ahead of the UK in terms of implementing a legislative framework for this area. The geothermal sector is, however, actively looking for support in terms of REFIT support which is not currently in place. The new Fine Gael/Labour Government's programme for government has committed "to legislate to support the geothermal energy sector".

Other clients have been active in district heating schemes especially for example in large scale apartment developments. Once again, the financial model here works on the basis that apartment blocks are fully let. The contracts themselves are novel and our firm has built up quite some expertise in the drafting of operation and maintenance contracts for district heating schemes and the relevant end user agreements for district heating networks.

### Marine wave and tidal energy

Large incentives for wave and tidal energy in term of REFIT support and grants were announced in 2008 (€220 per MW hour significantly higher than for wind and about €5million in grants). Obviously, if the prototypes can be made to work, Ireland with its large offshore coastline would be a key beneficiary of this power. Irish company Open Hydro is considered ahead of the race in the area of tide technology and Wavebob has a similar reputation in wave energy technology.

There is competition in these areas from Scottish and Portuguese companies, we believe it is vital that we get there first to commercialisation because, if not, funding will flow to another country which was the first to commercialise the technology. The advantage of being first to market is the opportunity to get a share of

the manufacturing market for such equipment, something we have not being able to do to date for wind turbines.

### Getting the Power Purchase Contract Right

Nowadays, instead of having one choice, commercial and industrial consumers of electricity face an increasing array of power purchase possibilities. With this increase in availability comes the increased scope for negotiation.

Whilst large consumers of energy may consider novel ways of acquiring power, such as installing their own combined heat and power plants or purchasing or availing of a district heating system, they may still need to purchase electricity from a third party provider. Since 2005 all electricity customers have been entitled to switch electricity supplier. This can be done through the Change of Supplier process handled directly between ESB Networks and the relevant electricity suppliers without disruption and at no direct cost to customers.

Some of the current suppliers in the market place are: Airtricity, Bord Gais Eireann trading as Bord Gais Energy Supply, Energia, ESB Customer Supply, ESB Independent Energy and Vayu Limited. Each contract is likely to be slightly different, and each consumer will have different concerns. However, the following fundamental principles must be borne in mind:

- The price being paid for the supply must be fully understood.
- As with every commercial contract, the consumer must be fully aware of the practical implications of each clause.

The greater the demand for electricity of the consumer the stronger it will be in trying to renegotiate standard terms.

### Traditional Energy

Oil distribution and supply companies are still valuable businesses though deriving profits from volumes at low margins. They tend to have a very good distribution structure which could be used for the distribution of biofuels and biomass and indeed electric car charging stations. It may well be that their strategic view is that green energy infrastructure, such as electric cars, will have a longer lead in time than expected and developing the relevant infrastructure is not yet necessary.

### KEY AREAS FOR GROWTH

Key areas for growth of the green economy in Ireland highlighted in the excellent Report of the Group on Green Enterprise Opportunities published in October 2009 are as follows:

**Renewable Energy:** The development of wind, bio energy, wave and tidal power.



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The East-West Interconnector is a proposed high-voltage direct current submarine and sub soil power project for connecting the UK and Irish electricity markets. The project is expected to be completed by Eirgrid at a cost of €600 million with a 500 MW capacity. It will increase competition and security of supply and better use the capacity of wind energy. Irish renewable generators will benefit from the interconnection as it will increase their available market and make it more economically advantageous to construct more large scale renewable generation. Indeed a European grid will be the ultimate aim with solar power from Spain to wind from Ireland and hydro from Scandanavia.

**Efficient Energy Use and Management:** Implement energy efficiency standards, to drive savings in fuel costs.

**Waste Management:** Extending waste management recovery and recycling. A regulatory structure of waste management needs to be implemented. Ireland needs to move from a regional approach to waste management to a national model.

**Water and Waste Water treatment:** The introduction of volume-metric water charges which would allow for the funding of the public sector with the assistance of the private sector to improve our water and wastewater treatment facilities. The new Fine Gael/Labour programme for government commits to establishing "Irish Water", a new state company that will take over water investment and maintenance from local authorities.

**Deliver Green Zones and a Green IFSC:** Developing a Green IFSC presents an immediate opportunity. Potential exists for a Green IFSC cluster and green investment vehicles (e.g. investment conservation energy companies, banks and VCs) carbon trading in associated and professional services, etc. A sub-group of the IFSC banking and treasury group has already been set up to review this sector. The carbon offset market is likely to grow with an estimate of global carbon trading volumes of €2 trillion by 2020; this gives Ireland an opportunity to get a foothold in the carbon trading market. The report recommends the speedy implementation of EU Directive 2009/29/EC which allows installations in the EU Emissions Trading Scheme ("ETS") below 25,000 tonne per annum to opt out of EU ETS and join a secondary domestic offset market. We believe having such a hub should support other areas of the green economy in Ireland.

**Create World Class Research Centres:** Managing energy requires a combination of ICT hardware and software which are areas of existing strength in Ireland. Smart meters which are still in an early stage of development should drive energy savings.

**Remove hurdles to the development of the green economy:** Remove regulatory and planning barriers delaying implementation of green energy projects.

**Green procurement:** Implement green procurement across government departments that will drive growth in the green economy.

### SOME TIPS FOR THOSE INVESTING IN GREEN TECHNOLOGIES

- Be extremely careful that you understand the technology.
- Be extremely careful as to pricing. The Energy Market is complex and investment strategies must be made on a long term basis. A good understanding of how the SEM pool works as to pricing, state supports, etc is necessary. Investors need to be aware that energy prices fluctuate and go down as well as up.
- There is obviously ample opportunity for new entrants to the market to get funding provided their project is viable. Having acted in investments in a large number of start up energy companies, we feel that some of the investment valuations might be on the high side.
- Do not forget management. We have worked with a number of wind farm developers over time many of which have equal abilities as engineers, etc., but those who lead the pack have good management and decision making skills and are able to deal with the negotiation procedures required throughout the funding process and contractual phase.
- Get good advice onboard. There are a number of energy consultants out there and one only has to go through the market to establish who the competent players are. In any project getting such advisors onboard is a good idea.

### CONCLUSIONS

- There are environmental, supply issues and legislative policies driving the green economy.
- There is a need for more proactive legislation to assist the development of a green economy in particular as to planning and land ownership issues.
- To really drive the green economy and if we are to take it seriously a cross governmental departmental unit should be given the power to drive through the necessary legislative changes to allow for the overall mix of a green economy effectively working together.
- We see wind as a proven resource. If tidal and wave power can be harnessed, then we have a guaranteed continuous supply which unfortunately wind cannot provide us with.
- We believe the government needs to continue to develop our grid infrastructure, in particular, to connect into the European grid.



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- We see an appetite for investment, but bank funding is hard to get.
- We see opportunities for growth in ICT for efficient use of energy and systems to operate green energy, water monitoring and use and recycling of waste - Ireland could be a market leader here.
- We welcome the development of a Green IFSC.
- We believe investors need to be wary as to pricing and carefully choose which technologies they support.

## For more information please contact



**Philip Daly**  
Head of the Energy and Natural Resources Unit

T +353 1 637 1582  
E [pdaly@lkshields.ie](mailto:pdaly@lkshields.ie)

### **About LK Shields Solicitors**

LK Shields Solicitors is one of the leading law firms in Ireland. Founded in 1988, we have consistently grown and we now have upwards of 130 staff. We enjoy and take pride in our work and offer clear commercial advice to our clients. We ably meet the full legal services needs of both international and national businesses across a large range of industry and service sectors.

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### **LK SHIELDS SOLICITORS**

39/40 Upper Mount Street, Dublin 2, Ireland

T +353 1 661 0866 | F +353 1 661 0883 | E [info@lkshields.ie](mailto:info@lkshields.ie) | W [www.lkshields.ie](http://www.lkshields.ie)