

The Missing Giant of Irish Energy Policy

**Comments on
“Towards a
Sustainable Energy Future
for Ireland”**

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A discussion on the Department of Marine and Natural Resources Green Paper “Towards a sustainable Energy future for Ireland”

1. Background – Dangerous times

The Green paper is an extremely impressive document. The itemization of the resources being finally marshaled to begin tackle real and serious problems is impressive. This can be seen by the large number of Task forces, strategy groups, committees etc set up in the last 2-3 years. The icy hand of reality has finally hit the Irish energy sector with the minor Oil and Natural gas shocks.

However it is likely that the resources outlined in the Green paper, while significantly greater than in the past, are still at least an order of magnitude too little and too late. The time for least cost and no regrets is long over. We now need high cost extremely risky expenditures to get us to a good starting point in the next five years.

We live in very dangerous times, the green paper is a paper of the past and not of the future. It does not realistically look at the major problems, internationally and nationally, which will impact on our energy use, our economy and the availability of resources.

Among the greatest drivers in the future, which are starting to be finally debated, and which make the green paper an historical, rather than a strategic document are :-

- The property bubble
- The dying of the Oil spot market and the growth of Bilateral trade agreements
- International trade
- Oil, Natural Gas, Nuclear and Coal Peak
- Bio fuels

1.1. *The property bubble*

One of the major time constraints is obviously the lifetime of the property bubble. Nothing dominates the Irish GDP quite like the Construction bubble. It is one of over 18 National Bubbles identified by the Economist magazine world wide. From long term trends in other countries it would appear that the market is overvalued by at least a factor of two. This is similar to the level of “exuberance” of the Japanese Property market prior to it's crash which even to this day has not returned to 50% of its former level.

The statistics are increasingly grim and most analysis is accepting that the end of the boom is near and even the most optimistic are prepared for a “soft landing”. Unfortunately reality is rarely soft and with in excess of 30% of property owned by speculators and 20% of houses unoccupied (though heated!!) the landing will not be to everybody's taste.

It is in this context that Irish Energy policy will be a great success. Collapse of the construction sector from 80,000 to less than 16,000 units p.a. would result in 2-3 M Tonnes less of Co2 (just from cement production). Reduced economic activity of 20-30% would probably result in a further 2-3 M Tonnes reduction. Negative equity could actually mean that 20-40% of houses will be unheated and electricity consumption drastically reduced.

With major drops in electricity and gas demand the gentlemanly conduct of the ever increasing energy market in Ireland, which allowed new competitors to grow into the market, will be over. Competition in a declining market can be highly destructive. Availability of plant will be high, for a few years anyway, as there will be a high degree of excess capacity and consequently stranded assets.

Irish energy policy would then have met all its targets, which probably shows how incredibly unbalanced it is. By only concentrating on meeting emission targets and keeping energy prices low, the country will be left with a totally inappropriate energy infrastructure. Projects which could act as the nucleus for new businesses e.g. Eco industrial, AD, CHP and District heating would not exist and in depressed economic conditions will be difficult to contemplate.

- **Irish Energy policy needs a social dimension**
- **Technologies and pilot projects which could be used to boot-strap the Irish economy should be prioritised**
- **At least 25% of all energy projects need to be awarded on the basis of their ranking in terms of Macro Economic benefits rather than just on Emissions or €MWh**
- **Example 1. Eco industrial park with an Anaerobic digester might help support a hundred jobs whereas a wind turbine with the same energy output and emission savings might have a tenth of the macro economic input.**

- **Example 2. A Biomass CHP and district heating system at a social housing project would have significant health, maintenance and financial impact on a local macro economic level compared to say co-firing the same biomass.**

1.2. *The dying of the Oil spot market and the growth of Bilateral trade agreements*

Unfortunately the basis of the Green Paper is significantly flawed due to the blind ideological focus on the power of the market place. Yes it would be nice if we had good healthy competition in the Irish market place, but it was not Ireland or Europe that caused the massive recent rises in price of energy.

Internationally the energy spot market is gradually weakening as the oil and Natural Gas producers are increasingly being tied up by very long term Bilateral trade agreements with countries such as China and India.

It is nearly a generation ago since the horror of the Oil embargo which was facilitated by the existence of bilateral agreements between the Arab world and the Western world, which facilitated a focused embargo.

The new oil provinces, particularly Alaska, the gulf of Mexico and the North Sea flooded the market and allowed the great liberal miracle of the Oil spot market. Competition on the spot market drove price down and created a virtual global oil pool that anyone could draw out of if they had the dollars. This allowed new producers in to the market without needing longterm agreements and Bilateral agreements died under the onslaught of cheap oil.

After the low oil prices of the 80s and 90s the Oil producers, and particularly Russia, do not want to be caught in the same downward spiral. They have begun to tie in longterm agreements again, in Russia's case much to the distress of Europe who want their deals to be purely market based.

However the truth is that the Western Oil majors are yesterday's news and now control less than 10% of the worlds reserves. The power in the Oil markets is now with the great National oil companies. They are increasingly making their oil deals on the basis of political rather than economic grounds. Particularly China and India are tyeing up a great deal of the worlds reserves in long term contracts.

Indeed the same is also happening with, Uranium, LNG and Coal. This is a return almost to "Neo-mercantilist" trade, which has very significant implications to anyone looking at the Energy market place for security and competitiveness.

Its not much fun being a buyer in a sellers market. Belief in the market place was developed over the last 20 years when it was a buyer's market.

Suggestion GP2.3.18 (a) or similar. Ireland will need to develop long term bilateral agreements for supply of a reasonable percentage of Natural Gas and Oil i.e 20-30% for at least 20 years

Suggestion GP 2.3.18 (b) At least one member of the Department of Foreign Affairs at key Embassies should receive training in energy analysis to help keep the Irish government informed of Energy matters internationally

Suggestion GP 1.2.23 (a) Perhaps use NORA or similar to enter into long term supply agreement for at least 20% of our energy needs

Suggestion GP 2.2.55 (a) Develop close and meaningful academic and R&D links with smaller oil and Natural gas producing producers.

Suggestion 2.2.55 (b) Work with Mineral science course in AIT and with Irish exploration companies and Institutional investors in Ireland to see if there are opportunities which can be developed

Answer GP 3.2.7 Need to enhance contingency measures to a much greater extent, as outlined above

Answer GP 3.2.8 The G.P does very little to ensure security of energy beyond the short term i.e 1-3 years. It completely ignores the growing moves internationally to long term bilateral agreements.

1.3. Globaltrade

The move away from the liberal agenda in the Energy markets has already been mentioned. Free trade is also under review in the regular GATT and WTO meetings. It is becoming clear that there is starting to be major opposition to the irregularities and unfairness of many aspects of world trade as it now is. However the real threat to global trade are not at the emotive level of the trade negotiations but at the very heart of world trade.

1.3.1 Tradeimbalances

During the Second world war, at a meeting at Breton Woods, the general framework for the world financial systems were laid out. One of the major stumbling blocks was the arguments about settlement and currency. The losing opinion was that we should have a separate currency for international trade and all countries should balance the books annually. Instead we got world trade which basically used the dollar as the major reserve currency. This has allowed major imbalances to exist and proliferate which are fast coming to a situation that we will soon see a major correction.

The major problem is the US trade deficit which has been in existence for over 20 years but for a number of reasons has got much worse in the last number of years. Both China and Japan have over \$1 trillion in reserves. Similarly most of US trade partners have increasing stacks of dollars. This has been made significantly worse by high oil prices. At some stage there will be a major realignment. This has major implications in terms of world trade and could mean that world trade becomes extremely constrained for a number of years. It could mean a partial return to balanced world trade.

As a major trading party the US economy has a large impact on our GDP. It is conceivable that a US crash could knock 20 – 30% off our GDP. It would also substantially damage world trade and could mean constraints on energy supply due to the need for hard currency for international trade.

1.3.2 Derivativestrading

Derivatives trading is used widely in the Energy sector particularly in terms of buying forward, options, futures etc and gives the market a certain degree of comfort in terms of risk. However the global derivatives market has escalated beyond any degree of sanity and regulation in the last five years. Derivatives trading is currently running at about 5 times the level of total world trade.

We have seen the collapse of many major companies due to unregulated derivatives trading, however the next casualties are undoubtedly going to be much greater.

GP 3.2.7 Exposure to major problems in international trade could make reliance on imported fossil fuels a very immediate problem. It is important that vital services and businesses can avail of substantial local energy resources

1.4. **Oil, Natural Gas, Nuclear and Coal Peak**

In the Early 70's the club of Rome published the ground breaking work “The limits to growth”. Using early computer simulations they ran various scenarios at different rates of growth. Not surprisingly given exponential growth in population and resource usage/wastage the scenarios saw difficulties within a 100 years. Perhaps the most interesting thing about the models is how any particular resource availability didn't effect the overall outcome.

Not content to base it's future on mere computer models, mankind moved out into the real world and enthusiastically consumed all the resources it could find with the greatest ingenuity and speed it could manage. Mankind's unbridled consumption has already brought us to peak production in many resources - peak being the maximum possible production.

- Oil Peak, A terrifying 80 MILLION BARRELS /DAY.
- Natural Gas Peak
- Food Peak
- Ground Water Peak
- Fisheries
- Timber

Uranium might also, or soon be peaking, and this will be significantly moved closer with any substantial international “dash” for nuclear power. Coal (ignoring climate change) could peak as early as 30 years if projected growth in demand and fuel substitution happens. Many minerals are also reaching peak.

Much of Energy discussion ignores constraints in all natural resources. Ireland is among the least densely populated countries in Europe with good soils and excellent Renewable Energy resources. It will however be plainly impossible for us to replace our 9 Million tonnes of oil a year, let alone the total 15 MTOE of Energy we use. Even with 100 years of development of District heating and 30 years of biomass and wind development Denmark has only succeeded in reaching around 2.5 Million TOE in Renewable energy production.

With a massive and well resourced effort Ireland could get to about 5 Million TOE by 2020, but with declining levels of all natural resources, all the technologies required will become increasingly expensive and difficult to implement as other countries also attempt to rapidly ramp up their efforts.

1.4.1. **The destruction of the energy industry**

All areas of the energy industry worldwide have been decimated by the liberal market. Both the US and UK coal industries have contracted from over 250,000 jobs in the early 80s to less than 40,000 now. Most of these jobs are in specialised underground mining and many of the capabilities will be difficult to ramp up. Entire support industries and educational establishments have also been decimated. In the case of Arigna, which has large reserves of low grade coal, for which a 45MW Station was planned prior to energy price collapse in the early 80s, the underground mining capability is almost gone. Many of the worlds coal reserves are in deep deposits and these will need huge re investment to be exploitable.

The Oil, Electricity and Natural gas industries have declined by similar percentages and the amount of specialists in many areas is at an all time low. Traditional apprenticeships, training programs and R&D have all been favorite areas for pruning and removing fat.

This means that many of the experienced personnel are reaching the end of their careers. It is becoming increasingly common for retired energy specialist to be lured by into the sector because of the deficit of skills. Many in the technical side have moved into business programs and it is not uncommon for them now to be completely Market fixated. This has profound implications for our ability to ramp up real physical production.

1.4.2. **Renewable energy manufacturing**

Equipment suppliers in the Energy Efficiency, Wind and PV markets are currently experiencing major constraint limitations. In many cases the constraints are several steps away from being resolved with component parts and materials being in short supply

1.4.3. **Water**

In terms of the European Electricity grid, it looks like one potential constraint is cooling water for Thermal stations in summer 2003 and Rain and snow for Hydros in a number of years in Scandinavia. In planning new thermal stations both Coal and Nuclear this is proving one of the greatest constraints in Europe, China and the US. This is perhaps one of the most interesting aspects of our energy system reaching constraints is that unexpected problems can tip an entire system. It also makes the threats posed by climate change much more immediate.

1.4.4. **Coal, Oil Shales and Tires**

Nothing shows the simple constraints in the system better than the recent curtailment on increased coal and other minerals production by the bottleneck which is large tyre production for open cast extraction machinery. Only a few manufacturing plants exist world wide and all these are running 24 hours a day. Typically these only produce a few tires a day which are hand made in large molds and cured over 24 hour periods.

The shortage of tires means that there has been a 6 month waiting period and only existing customers are being serviced. This has considerably curtailed new Coal production and was largely responsible for the large spikes in coal prices on the spot markets in the last few years.

So although Coal supplies are extensive, they do suffer from technical constraints as well not just those of Climate change

GP 3.2.12 With very significant constraints worldwide both in terms of resources and capabilities RTDI activity should not be focused only on technology breakthroughs but on building capability in sectors which are constrained.

1.5. **Biofuels**

One of the major sources of false comfort to the public and to many in the energy sector is the availability and Energy Balance of Bio Fuels as a substitute for Oil. However their should be great caution in relation to the envisaged scale of use of Bio Fuels as constraints are starting to appear in our food production.

1.5.1. **Agricultural production**

Very little surplus in any resources causes major price drops and similarly any deficits causes major price hikes. The experience of anyone in farming has been formed by over two generations of agricultural surplus. This has depressed the cost of many food products to near (and often below) production costs. For most in the sector this seems to be the way it always has been. Production has always outpaced demand. World demand for cereals has started out pacing supply over the last number of years. The majority of Ocean fisheries are in serious decline so these important off shore acres of protein source are disappearing.

Agricultural production is significantly under threat from high fertiliser (natural gas) costs, soil erosion, soil loss to construction and ground water depletion.

1.5.2. **The hungry car**

There is widespread debate about the amount of land needed to produce Bio Fuels. Supporters will always take the best estimates and opponents the worst. However it is safe to say the metal beast known as a car takes the amount of land which would feed 10-50 people. The green paper gets to the heart of this in recognizing that to meet even an insignificant 2.5% biofuel penetration would need 10% of Ireland's tillage land. On a global scale at 2% penetration we would be talking about 14 million cars or the food for at least 140 million people.

The US is already using more cereal for ethanol production than it exports. Margarine producers in Germany are finding the rising price of vegetable oil, due to vehicle usage, posing problems. This is highly likely to get even more extreme.

Priority must be given to agricultural waste for bio fuel production rather than using energy crops. Only bio fuels which do not leach substantial quantities of nutrients from land should be used.

Suggestion GP 2.2.19 It would be vital to have a representative Irish overseas aid on the task force for bio energy. Owing to the increased likelihood of famine in the developing world due to unsustainable decisions to destroy food for fuel production.. This is particularly relevant in light of the indication that Ireland might import bio fuels. In many countries cash crops, e.g. flowers, seasonal fruits etc have displaced indigenous peoples. Palm oil particularly is seen as a major new threat to indigenous people.

Our own horrific experience of famines should make us very conscious of the ability of “neutral” market decisions to have genocidal consequences. It is important that every effort is made to protect Ireland's residual good name and moral standing in the world.

Suggestion GP 2.2.22 Increased penetration of biofuels is mostly easily accomplished by reduction of fuel consumption !!

1.6. *Climatechange*

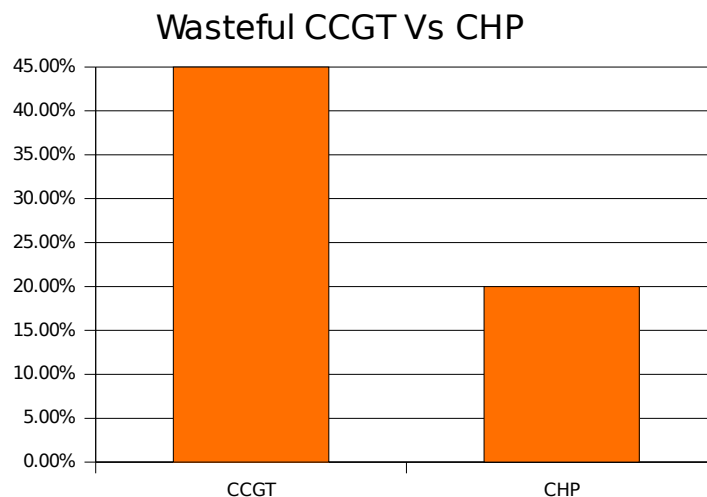
Whatever some may say the problem is climate change and not Kyoto.

**As mentioned in GP 1.3.5 the EU is already talking about 15-30% reductions by 2020
Some scientific estimates are already talking about reductions in excess of 70%.**

1.6.1 The Case against further CCGT

Focusing on the relatively modest current Kyoto targets is highly damaging in a policy document scheduled until 2020 (3.1.1).

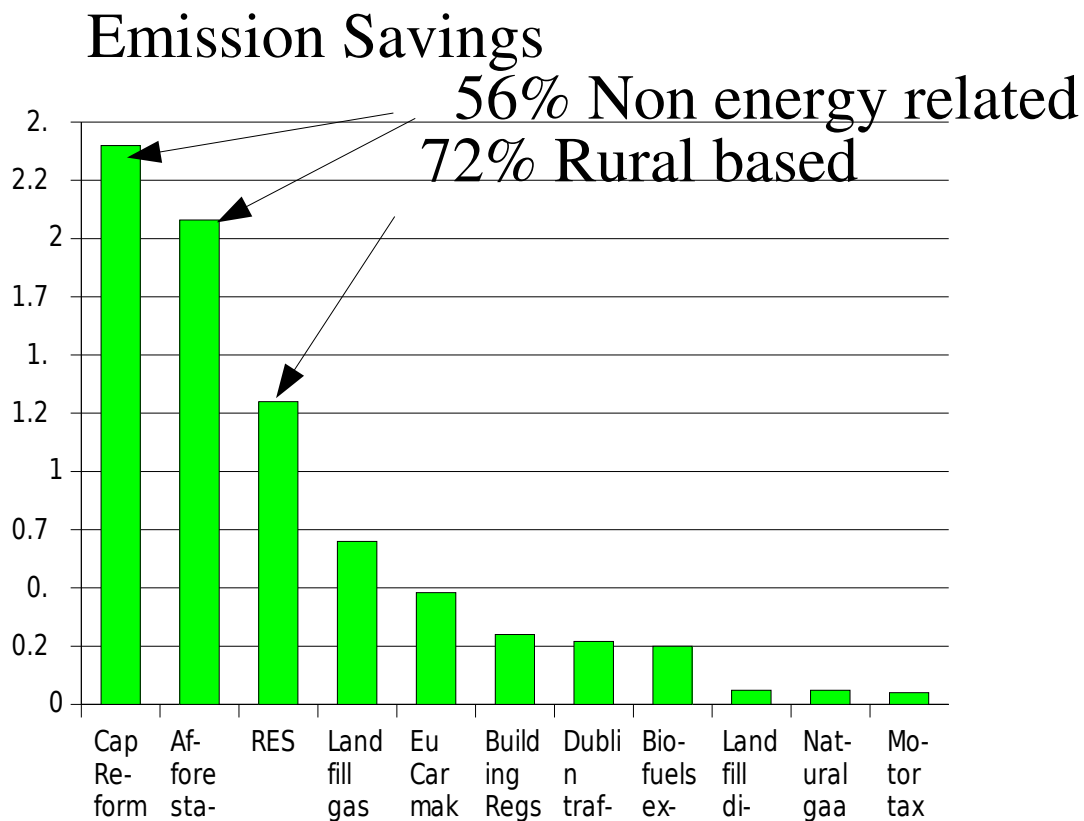
It allows for the acceptance of extra CCGT power stations, which are notoriously inefficient compared to much better CHP. Unfortunately in order to allow the corporate sector to play we have to allow a few more CCGT's to slip in. Ireland remains stuck at only at an appalling 2.5% CHP penetration level, compared to the 50% penetration in Denmark .



However by only looking at Kyoto the addition of a CCGT can be considered. However the 1 Million tonnes additional CO₂ produced, annually by this plant for the next 20 years, will greatly increase the challenge after 2012. It is hard to understand how this can be reconciled with concern about Climate change or Security of supply. It is obvious that Competition is the only real policy objective.

1.6.2 An energy policy based on Farm policy

In the obsession with meeting the letter of the law in regard to Kyoto rather than actually tackling climate change the focus has been on scouring the countryside for as many potential emission savings as possible. It is quite significant that 56% of the savings highlighted in the green paper are non energy related. It is also significant that the last 6 savings in fig 2.1.2 a from GP 2.2.5 have been completely negated by the decision to allow another CCGT.



This appears to get Ireland out of a short term problem (i.e Kyoto) but doesn't set the groundwork in place for the much greater challenge of the post Kyoto period. One of the major areas not discussed is the best use of Gas and Electrical infrastructure. Ireland will be forced to reduce energy usage by international climate change legislation or by Peak oil and natural gas in the period up to 2020. This means that the existing Gas and Electricity network is most likely will be reaching its maximum capacity in the next few years

1.6.3 Better use of National Assets

Considering that almost €10 Billion in Electricity and Natural gas infrastructural developments GP 1.2.8 and GP 1.2.18 has been invested it is very important that we get the very best out of these assets for the long term. Clearly the proper allocation of these assets is a major consideration. If we are serious about climate change we know we will need massive deployment of CHP, Biomass and AD. Yet we are clogging up entire regions with massive CCGTs and Wind projects with no consideration of how we are going to fit in a myriad of smaller projects later.

1.6.4 Realistic targets are needed until 2020 to tackle Climate change

It is very important that targets for CHP, AD, Biomass etc are worked out until at least 2020 with Electrical and Gas capacity being preserved for these projects. Focus on Kyoto and quick fixes is blinding policy to the greater challenge of the post Kyoto period.

Suggestion in the white paper it will be important to identify capacity required until 2020 for a wide range of technologies particularly CHP and no further large scale power stations should be allowed until this is completed. Otherwise it makes a complete farce of the rationale behind having a policy document.

2. The Five Pillars of energypolicy

2.1. **Background**

Traditional energy policy has four/five major pillars

- Competitiveness
- Security (partially including indigenous)
- Social (partially including indigenous)
- Environmental/Sustainability

and in Energy producing areas i.e Saudi, Venezuela, Russia

- Indigenous

Social and Indigenous energy policy are absent from the green paper and indeed are absent from EU energy policy. The absence of these however means that the Green paper is highly unbalanced. The Liberal agenda and the mythical powers of the market place are usually treated with the abject respect that we used to preserve for Corpus Cristi processions. Like most ideology it is crouched in its own language and magic incantations. Unfortunately the writers of this submission believe in many wonderful things but not in the omnipotence of the market place.

2.2. *The Currentsituation -the three amigosof the Greenpaper*

.Competitiveness (The Godfather)

- Security (the Muscle)
- Environmental (the annoying conscience)

In the great ideological wars of the late 1980s and early 1990s the liberal agenda swept the cobwebs out of Energy policy and got rid of any leftist type concepts like social energy policy. Indeed for most of the 1990s Security and environment also played a very minor part. Obviously if everybody just left the market to get on with it everything would have been fine, but politics re entered the Energy markets and UK and US/ Iraq messed up the free flow of oil and Russia/Ukraine messed up the free flow of Natural Gas. This dragged the old Security bug bear back from the past.

It is important to realise that Energy policy is not an exact science and that Energy policy goes through fads. In the 1930s, 50s and 60s Social Energy policy dominated. In the 40s and 70s security. In the 1990s and 00s Competitiveness. However it should be clearly understood that this leads to extremely violent swings as time and time again policy finds itself over compensating for previous periods.

At the beginning of the Thatcher/Reagan era the energy sector had just ridden out the nightmare of the oil embargo and had a decade of massive expenditures on new pipelines, new oil fields, new refineries, new power stations, new transmission systems. Previous to this during the era of the 50s and 60s huge funds had been spend on building up Energy companies, R&D and teaching.

So there was massive fat in the system and during the liberalised market phase the wunderkid of the markets were let lose on the energy system and from out of the grim and dank 1950s red brick public highly regulated companies they build their gleaming new market. Basically the 1980s and 1990s liberalisation lived on the investments of the previous generations and basically ran many vital energy systems into the ground. Any industries that needed subsidies were closed. Energy R&D is only a fraction of what it was in the 70s. Most of the Alternative energy technologies we use now is based on work during this era.

The early era of liberalisation in the late 80s and early 90s were the glory years, oil and natural gas flowed freely. These glory days and the idealogical certainty is kept alive in the GP and the delightful work on the Irish electricity market by Detoiche.

GP 3.2.8 Concepts such as security through an internal market when we import over 90% of our energy is delightfully ludicrous Orwellian concept. It will take much more than 90 days oil and Natural gas reserves to deal with infrastructural, resource and capital constraints which will get worse over many decades.

2.3. *The need for a balanced green paper*

In the rest of this submission, the areas of Social and Indigenous energy policy will be discussed. It would be important that at a time when the liberal agenda is in retreat throughout the Energy markets that we rationalise what is useful about competitiveness and what is pure ideology.

In the event of major disruptions we will need to keep jobs Hospitals and schools running and start new businesses and we will need to pay for the energy we buy abroad. Cheap competitive energy will be of no use if society can't afford it . As mentioned in the section on the property bubble, the green paper would be a total success if the bubble burst and would meet all its policy targets. This obviously reflects the merits of the green paper.

Ireland is one of the few countries of the OECD that could be self sufficient with Renewable energy. At best if we play the conventional fossil fuel game we will always be 10-15% more expensive for electricity because our coal, oil and natural gas all have long supply chains. No matter how we flog the market and poor old ESB/ Bord gas etc we will still live on a island at the mercy of international energy markets.

However properly planned we could move far ahead of our competitors and remove ourselves from the nightmare struggle for every declining sources of Fossil fuels. However we will always be a poor imitation of a perfect market.

A balanced Green paper should give equal billing to each of the following

- Competitiveness
- Social
- Security
- Sustainability

and in Rural areas with good Renewable energy resources

- Indigenous

3. Social Energy Policy

3.1. *The missing giant of Irish Energy History*

Perhaps the greatest accomplishments of the Irish energy sector were the Shannon scheme and the Rural electrification of the 30s and 50s. These scheme recently was awarded the international Milestone award for the importance of the project internationally.

The establishment of the ESB and Bord na Mona were other drivers behind the growth of the Irish state. All these were driven by Social energy policy and the belief that you could propel a country forward by supplying energy. Indeed these were among the first industrial companies in Ireland. The personnel, technical capabilities and financial resources nurtured in these companies helped many other businesses start as well.

Throughout the world governments used energy projects, such as hydro projects, coal mines, Coal gas, electricity to develop regions and entire countries. In most cases the governments borrowed the money, develop the capabilities and built projects when private business was unable. It is significant that a residue of this is still seen in GP 2.3.26, where although the ESB is seen as somewhat a nuisance in terms of the market, government still realises that the capabilities and importance of the company still is critical for the country.

Part of the rationale behind the government taking over monopoly powers in the energy sector is that businesses were good at cherry picking and supplying power to a few good customers. Particularly from the 1890s to the 1920s their was great fragmentation in the energy markets and it was not uncommon to have several different electrical and Gas standards even in the same city. So part of the reason for government involvement was the rationalisation of Energy supply. It quickly became identified that electricity was a social right almost and that civilized countries had lighting for all their citizens. Indeed it is still used as an indicator of development.

Cost was therefore not seen as an issue and water, sewerage and electricity were seen as social entitlements.

3.2. *The demise of the giant*

Unfortunately being a monolith monopoly really messes with the sanity of a large public company and the great public giants such as the ESB, CEGB (UK), EDF (France) invariably developed command economy personalities in keeping with their positions of total power. Between political interference, inertia and stagnation these great hulks became an embarrassment to their owners in government.

When the bright new shining markets arrived with their neat and tidy dissection instructions, it seemed like a good thing to chop them down to manageable sizes. Unbundling and rationalisation is a good way of getting rid of ones over grown love children

With the fading of the great social experiments with their complex energy jargon, the public sector moved back from involvement in the energy sector.

3.3. *Northern Ireland*

The UK financial subvention into the Northern Ireland economy, became very large during the troubles and owing to the collapse of it's heavy industry. There is a real risk that in a long term economic recession or worse a depression that the UK government would not be able to maintain this subvention and economic hardship could damage the stability which we have all gained from.

Development of an ambitious Renewable energy programme on the Island could become a very significant engine for growth for Northern Ireland. With the remains of good engineering skills and heavy industry Northern Ireland could take a much greater role in the sector.

As mentioned in sector 1.4.2 there is currently production shortfalls internationally in the area of Wind turbines and PVs. Without doubt an energy crisis would tighten supplies of many other technologies. The shortfall of wind turbines and particularly wind turbine blades offers the first opportunity in a decade for manufacturing in the sector.

Technologies where markets could be developed in the short term

- District heating piping and fittings
- Heat pumps
- Wind turbines, Wind turbine blades, Towers,
- Anaerobic digesters
- CHP
- Solar Water heating
- Insulating exterior cladding
- Heat recovery systems

Suggestion: An all Island energy business development group which would set its targets based on industrial development through energy projects, i.e not energy price. This should have strong input to R&D in the sector

3.4. *Plan B for the Irish economy*

Unfortunately because we are held in thrall by the success of the Celtic tiger there is very little discussion of what happens after the Property bubble and the multinationals face problems. The Northwest group has however been working on how to stimulate the economy post a major crash

There is the potential for a concentrated retrofit program for the Energy inefficient infrastructure we have already invested in excess of €400 Billion on . The retrofit program would not be as large as the current construction effort but it could be 30-40% of it's size and could diminish some of the worst effect of a construction collapse.

With Citizens reeling from negative equity and major devaluation of the equity markets consumer confidence could be very low. It could be possible by a mixture of initial public pump priming, long term investment funds and borrowings to build a very lean economy that requires minimal energy imports.

Unfortunately our work would indicate that the critical path is the time needed to develop the technical capability and building strong case histories to facilitate financing.

The main Technologies and training that would be needed over the next 3-5 years are :

- District Heating
- Building Research Centre for Building retrofit
- Industrial capability (as indicated in 3.3)
- R&D in Low energy agriculture, Forestry, Fishing, Extractive industries
- Short Sea shipping and inland waterways
- High energy integration
- Industrial processes which use intermittent electricity, Metal and plastic recycling
- Eco industrial
- Renewable energy technologies particularly AD
- ESCOs

Suggestion funding of €2 Billion for 3-5 years to develop a wide range of pilot projects and new educational programs

3.5. *District heating*

The poor building standards and large house sizes helps improve the economics of district heating in Ireland in spite of lower degree days. This would be the best way to keep fuel options open. This technology will be critical if we are to greatly increase the use of CHP.

It should be seen as compulsory in all new housing estates and all Industrial estates, Public campuses of all sorts should be retrofitted. Any plans for extensions of gas distribution systems should be evaluated against the alternative option of district heating. It is insane to keep on increasing the number of Natural gas customers when we are already so vulnerable to gas shortages.

3.6. *Research and development*

Much of energy technology Research and development has been impacted by simplistic market manipulation. This has meant the focus has been chiefly on reducing cost per kwhr. This has in many cases moved the concept of design obsolescence into energy devices. This is a very strange concept, a “sustainable” throw away, technology. You can see this with many technologies such as wind, Biomass, CHPs, Boilers etc.

3.6.1 Pension enabled technologies

In the event that a major retrofit program was undertaken on the Irish infrastructure one potential investment vehicle would be for specialised pension and trust funds to be allowed which could be used for capitalising energy projects. To limit risk these funds could be spread over a very large range of projects. Also all equipment used could be specified as having 20-30 year life with a high residue value, i.e. be able to be fully repaired and operated after that period.

While it is not permitted under EU law to set onerous standards to exclude competition there is a real need however to insist on minimum design criteria for equipment to be designed to have a high residue for Pension requirements. At the moment many energy technologies are being developed to minimise operating cost over 10-15 years however not much equipment is designed for 30,50 or even 100 years continuous operation. With production in many technologies at full capacity, very few companies would be interested in re designing their equipment to meet the longer design lives required.

This would mean that Irish industry would have to take existing equipment and subjecting it to rigorous testing. Irish industry would need to develop equipment to meet harsher design life criteria and this equipment would then be world class and that will ultimately become that standard.

With Energy prices much higher the cost per kwhr is less of an issue.

Suggestion Financing and industrial task force to include department of finance and some investment houses to look at what requirements they would like met by projects.

3.6.2 Intermittent power.

Ireland has immense wind and wave resources. However the major challenge is fitting more capacity on the system. It also has a number of areas of grid which are weak and islands. Instead of always reinforcing grid with heavier distribution and transmission lines it is important that (Integrated resource planning) IRP is used. In many cases a mixture of technologies could be used which would result in lower capital costs and would help develop a better understanding of the dynamic control of isolated systems.

3.7. *Third Sector*

There is almost complete control of the Irish Energy market by large corporate and public bodies. Very little consideration is given to the third sector. Many community groups, voluntary bodies and not for profit organisations are ideally suited to running power projects. Indeed large percentages of RES projects in Germany and Denmark are owned and operated by co-operatives.

In developing political support for ever more ambitious target it is critical that as many citizens as possible are involved in the energy sector.

GP 3.2.11 It is important to set realistic targets for penetration by the 3rd sector into the energy market. Every effort should be made to remove obstacles to their involvement. Capability building should be a critical aspect.

GP 3.2.4 Largely structural and the total dominance of large projects in the Market. At least 20% of the market should be aimed for small <1 MW projects in the area of wind, Biomass, CHP etc. These projects will not waste valuable transmission assets and will be more feasible for owning and operation by the third sector.

3.8. *Overseas aid*

Ireland's overseas aid is perhaps one of the sides of the Celtic tiger that is truly impressive and a world leader. Unlike many nations we do not practice tied aid and from all accounts are incredibly efficient and well thought of abroad.

Suggestion Establishment of Overseas Aid and energy task force to establish a training centre in Alternative energy for development workers and to look at ways that CDMs can be used to increase funding to overseas aid and help their development projects

3.9. *Maritime*

Water based transport is among the most efficient ways of moving freight. In the event of major disruptions in international energy or trade having highly efficient vessels could give Ireland a significant advantage. Short sea shipping is a key Eu transport sector.

Suggestion GP 2.2.46 (a) Establishment of a Water freight transport task force involving Waterways Ireland, the port authorities, Marine institute and IMDO. To work with SEI etc to source R&D funding for new generation of Short sea vessels and help develop ports particularly in the Regions.

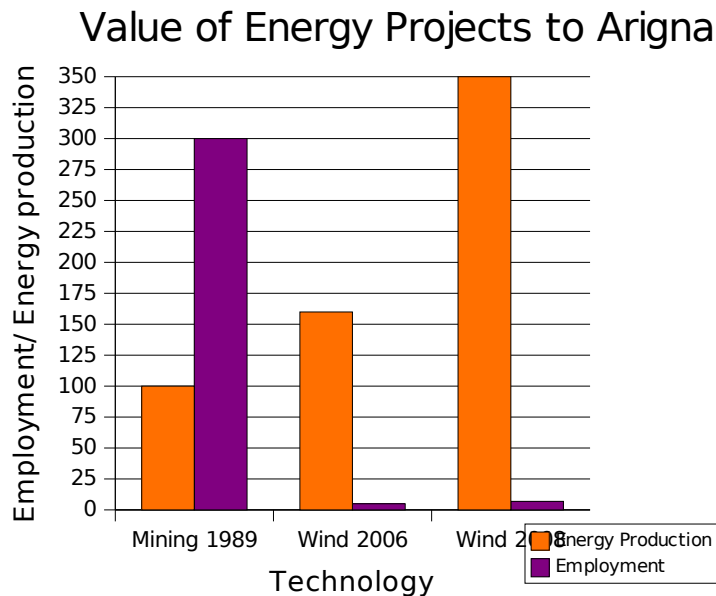
4. Indigenous Energy Policy

The unfortunate reality of Irish energy policy is that it takes very little consideration of local communities or their needs, this green paper reflects this opinion. Counties and regions have been massively encouraging and co-operative on facilitating government policy up to now, the absence of any local concerns is worrying.

The principle of Subsidiary assigns decision making to the level where it is best made. It is probably better for Counties and regions to use their county development plans to steer energy policy rather than wait for central government .

4.1 Exploitation of Rural areas

Windpower was identified in Arigna as a suitable alternative to mining in 1989 and a great deal of work has gone into developing the industry in the area. Indeed the area is probably synonymous with wind development in Ireland. The initial plans were extensive and included manufacturing and the establishment of a Test centre. Every effort has been made to maximise the benefit to the area. However the focus of developers tends to be on purely commercial projects and the benefits do not substantially accrue to the area.



Currently wind is producing almost 160% of the output as the old Arigna coal burning powerstation with less than 5 full time jobs. The potential for jobs even still is great but low cost development prevents any strategic projects being implemented.

Arigna had been well prepared and with strong business and technical capabilities. This is not the case with the majority of country areas, which do not have the same capacity or resources to help them maximize the benefits, from wind projects in their areas. Indeed the wind industry can be seen as the largest transfer of resources from Rural communities to outside interests in over 400 years. No effort is being made at national level to facilitate communities to develop their own resources.

Suggestion A minimum target of 20% of community and co-operatively owned projects should be set.

Suggestion Give local and rural development bodies equal say in all Renewable advisory, task forces and planning groups.

4.2 *Junk power projects*

In parallel with the exploitation issue is the more nationally critical aspect of junk power projects. In Agriculture particularly, CAP has learned the hard way that if you pay people to produce junk they will produce junk. After decades of paying farmers by quantity and not quality Europe has finally had to buy its way out of the mess with the single payment scheme.

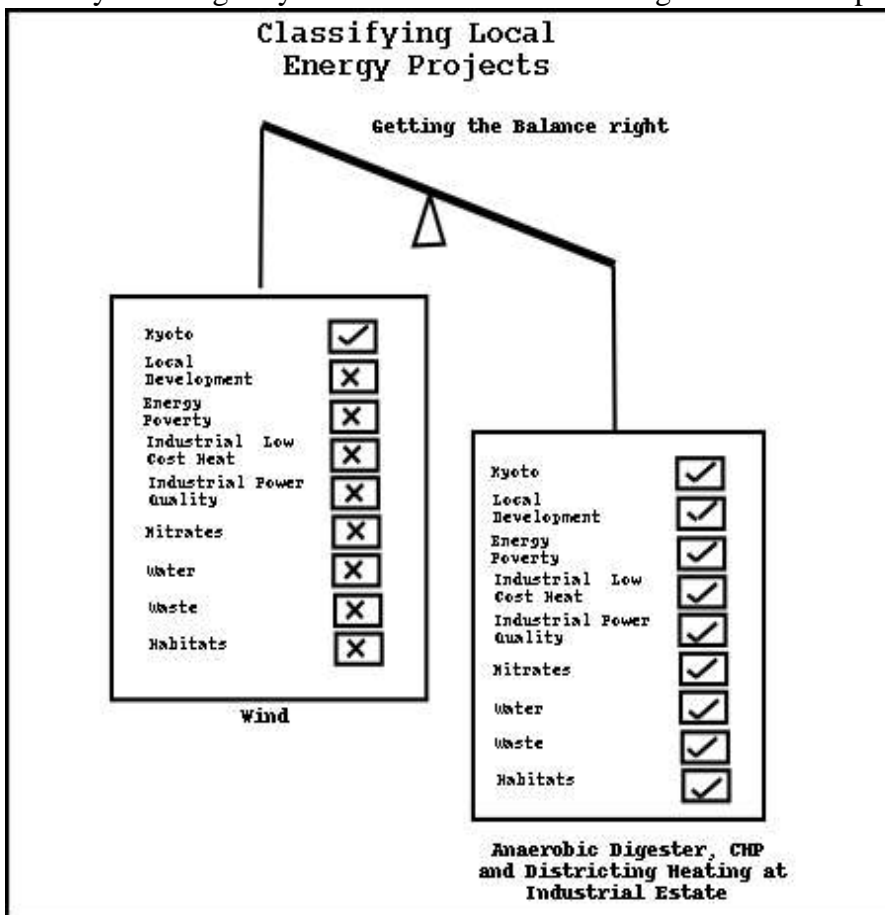
Agriculture is increasingly looking at value added projects.

In the case of Wind and CCGT the energy community have not learned the lesson, it is happy to pay for the cheapest power with little regard for added value. It is particularly the case in wind, where developers have moved to larger and larger turbines and are allowed to produce whenever the wind blows. The logical thing to do would be to only pay for the useful power and have the windfarms dump power at other times. This would make wind power marginally more expensive but would conserve distribution and transmission assets. If wind farm capacity was given on the basis of what they produce 50-60% of the time rather than 10-15% of the time the system could absorb a great deal more wind (This would effectively mean down rating the turbines to their production at 7-8 m/s) More importantly it would force the industry to come up with methods locally of storing or using the power.

4.3 Classification system

All regions need to start to plan for the long haul and keep capacity for a mixture of commercial, strategic and socially important energy projects. Every county should only have to meet their share of national targets and should set out this specific criteria in the county development plan. Vague statements like “the county will support Renewable energy projects” or specify areas for development should be omitted. These give local groups very little grounds to appeal decisions on.

The classification system that is being worked on would allow a county to set limits for projects in the county by their economic, environmental, social and competitive value to the county allowing only the fair share of national targets to be exempt



This would allow local development plans to prevent projects which are only commercial and have no value to the region. It would mean that counties would no longer be easy pickings for powerful companies and it would also force the price higher for Renewables so that more sustainable and viable local projects can be implemented.

4.4 *Energy agencies*

There is no role seen for the local energy agencies in the GP. This is regrettable as they have built up a large and varied capability. Their staffs from our experience are underpaid, under resourced and highly committed. The experience gained from working in the agencies is exceptional as the agencies cover all energy sectors. This means that their staff are probably better trained than most people in the energy sector. The ability to mix and match energy supply projects with end users is a capability that needs to be developed.

Suggestion A forum should be organised by the Department with the energy agencies to discuss their plans and capabilities

4.5 *Wind turbine test centre*

There are plans for the establishment of a wind turbine test centre and training centre in Arigna to develop more advanced wind farms. It differs considerably in terms of the current focus on the wind turbines rather than the quality and value of the output.

From this initial small test centre it is hoped to build a larger more sophisticated large scale hybrid project

5 Competitive Energy Policy

5.1 *Review of technology and projects*

A major handicap with the Irish energy system is that information on projects is hard to come by. It is almost impossible to find out how technologies, companies and fuels perform. There needs to be a very major review of projects to ascertain what works, how well and what are the economics.

Competition between technologies such as heat pumps, wind, insulation materials, building types etc can not happen without adequate information. It is extremely frustrating having people who have had bad experience with small turbines, heat pumps, solar panels and pellet stoves who have had grotesque experiences.

Similarly with larger projects, availability, prices etc should be published.

Suggestion All projects that receive Government funding, obviously with the exception of pre production projects or experimental, should publish good data. If they are not willing to publish they should be exempt.