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**RESPONSE to**  
**The Department of Communications Energy and Natural**  
**Resources on the**  
**Green Paper on Energy Policy in Ireland**

Prepared by Ierne Ltd<sup>1</sup>

31st July 2014

*"The tragedy of our present civilization is that it became dependent on marginal energy sources.*

*The marginal energy sources are fossil sources ... and nuclear ... The gigantic energy potential is the renewable energy potential .... And the sun offers to our globe, in eight minutes, as much energy as the annual consumption of fossil and atomic energy is. ...to doubt ...if there would be enough renewable energy for the replacement of nuclear and fossil energies, this argument is ridiculous.*

*... we are in a situation running into a conventional energy trap in two directions at the same time. First, we are in a process of the coming depletion of conventional energies, faster than many people imagine — or want to believe. And the second limit is an ecological limit, because the negative effects of conventional energies, of nuclear as well as fossil energies in different ways, overstress the ecosphere. ... Even if there would be much more potential, much more conventional energy reserves, it would not help, because we would arrive at the ecological limit, ... we have to replace the conventional energies consumption ... in the run of the next twenty to twenty-five years. This is the main challenge of civilization..."*

**Dr Hermann Scheer 1944 - 2010**  
**former Member of the German Bundestag**  
**Democracy Now, 15th October 2010**

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<sup>1</sup> An energy policy specialist, also involved in renewable energy project development and consulting. Details of its activities, publications and the author's bio are at [www.ierne.ie](http://www.ierne.ie)

## GENERAL COMMENTARY

The Green Paper on Energy Policy issued by the Department of Communications, Energy and Natural Resources (DCENR) in May provides a most welcome opportunity to reflect on the state of play. It is timely and essential to consider our vision for the future, not just for the Irish energy sector, but of the State as a whole, given the absolutely central role of energy in all countries and their economies.

The paper's aspiration of moving to a low-carbon economy over the coming decades is its most welcome feature. It is clear that the then Minister fully backed such a direction, and the current Minister has since reconfirmed this approach. Based on this aspiration, the declared interests of the State and those of this organisation are largely aligned on energy policy. Nevertheless, in responding, we have actively sought, insofar as possible, to avoid focussing on our own interests, rather we have directed our experience towards the overall long-term interests of the State.

Examining the document from the point of view of Ireland and in particular its citizenry, it is regrettable that the Green Paper lacks a clear, determined, singular and ambitious vision. Rather the paper shows by what it says, and indeed by what it fails to mention, that it is somewhat confused, and in places contradictory, on the role of fossil fuels in Ireland's future. It even risks damaging its own credibility by actually considering the possibility of nuclear energy in Ireland in a post-Windscale/Chernobyl/Fukushima world.

Too many cooks have spoiled the broth, as often happens with Government papers. Conflicting interests within Government and between Departments serve to water down the ambition and render such documents rather self-congratulatory and otherwise relatively innocuous.

The paper is rather glowing on the undoubted and welcome successes in energy policy since 2007, such as SEM and some growth in renewables. Indeed it ought to mention that the setting of challenging renewable energy targets, which were carried over into EU law with Ireland's agreement, was one of the most marked positive developments in Irish energy policy in that time period.

However, the paper is less than candid and up-front on the many significant failures since 2007:

- the paper leaves it to page 61 to mention that energy related CO<sub>2</sub> emissions in 2012 were 20% above 1990 levels (although this figure seems a bit high);
- Figure 7 on page 47 actually shows no progress at all between 2011 and 2012 in increasing the proportion of renewables in gross electricity consumption, and the following points will illustrate why;
- CER allowed fossil-fuelled generating stations to jump the grid connection application queue and get firm access in roughly a third of the time it is taking for renewables, thereby blocking renewables, and in breach of the Renewables Directive<sup>2</sup>;
- Eirgrid's failure to deliver the grid or the DS3 programme in a timely manner, or to take measures to guarantee the transmission of renewables, instead taking many very conservative measures which obstruct renewables, all in breach of the Renewables Directives;

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<sup>2</sup> It is an unfortunate long-term legacy of the disastrous 2003 grid moratorium, initiated by CER and Eirgrid (then ESB National Grid), that it can take up to 15 years from the date of the connection application for a renewable projects to achieve 'firm access'.

- all parties including SEMC, CER, Eirgrid, ESB Networks, local authorities, valuation office, banks, professionals, objectors (facing no legal costs), are piling costs onto renewables, which are seen as an easy touch, reducing their competitiveness and raising the cost of the Public Service Obligation (PSO);
- development of a proposed new all-island market (I-SEM), which is clearly designed by the SEMC to be unfavourable to, and even discriminatory against, renewable energy;
- the unpicking of the REFIT support scheme for renewable energy (primarily through constraint and curtailment) by the regulators, working with the Department.

Unfortunately, the Green Paper is seriously internally contradictory. On the one hand, its stated aim is to get to a low-carbon economy. But it goes on to explore ways to get more oil and gas, both externally and internally, to provide more oil and gas storage for 'security', more fossil fuel refuelling stations for transport and even 'fracking', which for Ireland would be madness.

In essence the paper is confusing short term security, where it is true that we don't want to run out of oil or gas before we have converted to other energy sources, with long term security, where we won't get off fossil fuels if we over-provide for them now. Fossil fuel sources are not very secure now, but not secure at all in the medium or long term, for both depletion and geo-strategic reasons, not to mention the inexorable rise in their cost. The paper seems to make no attempt to disentangle these two time horizons, and instead conflates them, in order to plough on with fossil fuel development, while claiming sustainable ambitions.

The use of the term 'low-carbon' is therefore quite telling. It is a stage on the way, not the endpoint. That ought to be clarified and Ireland ought to be ultimately aiming for 'no-carbon' as the only rational outcome.

Ireland, like every State that collects taxes on fossil fuels, is internally conflicted, because it more than anyone else is addicted to fossil fuels<sup>3</sup>. Only during a time of vast budget surpluses might this not be an issue, but even when Ireland had such surpluses in recent years, we still remained addicted. So it is not clear how we propose to cure this addiction, and the fact that the paper is completely silent on this issue is very telling. Indeed, Ireland is worse than many other states, since it also owns semi-state entities that use fossil fuels extensively in their businesses and often pay dividends to the State, particularly ESB, but also Bord na Móna.

In the end, Ireland has to make a conscious decision to spend more now (and maybe earn a bit less) to change direction dramatically and quickly, rather than obsessing about cost, and leaving itself vulnerable indefinitely, until the inevitable happens, at which point the cost that would have been incurred will seem laughable by comparison to the ultimate bill. As with fire engines, investment is required today to avoid expensive disasters tomorrow. A complete analysis would seek to consider the cost impact of fuel scarcity or unavailability, not just its price. But economics is a very limited pseudo-science, usually (but not always) based on facts and evidence. There are very few future facts, apart from death and taxes, which leaves economics blind and with no vision, indeed a tendency to obstruct the vision of others who use different tools to imagine the future. Economics needs to serve the objective, not become the objective itself.

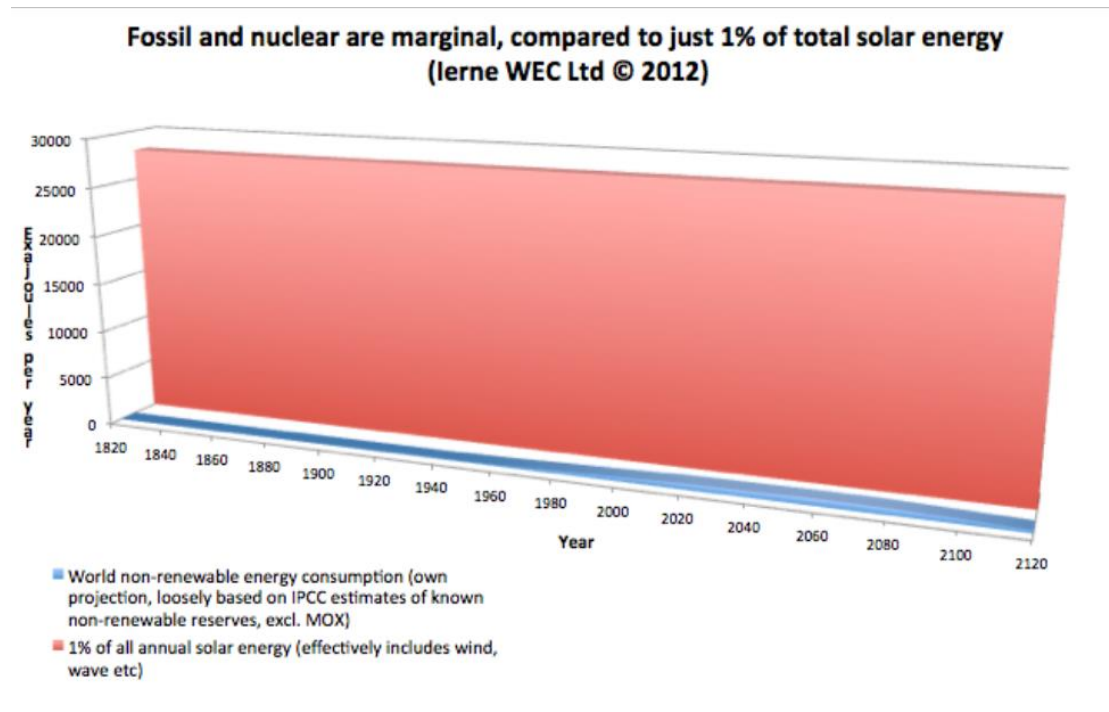
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<sup>3</sup> Neither excise nor carbon tax apply to fuels used for electricity generation in Ireland, so this point refers only to heating and transport; Ireland collects over €2bn per year in excise on fossil fuels and around €350m in carbon tax, while the country's fossil fuel import bill is some €6.5bn per year.

Vision is often the product of a single mind, and action is generally not forthcoming when everyone must be involved in the decision. While it is laudable that Government believes it needs to consider everyone's interests, both in the public and private spheres, at some point there needs to be a single point of authority to draw up a positive vision and responsibility to implement that vision, and quickly.

## GLOBAL CONTEXT

As stated by the late Dr Hermann Scheer MdB shortly before his untimely death, fossil and nuclear are marginal sources of energy. This is illustrated in the graph below, which compares only 1% of global solar energy delivery with the likely pattern of consumption of all of the energy previously and currently available to humanity<sup>4</sup>.



The tendency to argue for a 'fossil free' energy future is risky because it opens the door to nuclear, suggesting that the only real problem is climate change. But nuclear is also facing depletion, since it also depends on a rather limited resource. So a switch to nuclear only postpones the equally serious energy security problem for a few decades, and then lands us back in the same dilemma, which may then tempt us to go exploring for more fossil fuels. Why do so many smart people keep reaching for half-baked solutions, or even ones that don't currently exist, while avoiding the obvious? The ultimate clean and more or less inexhaustible energy solution is renewable energy, and we can harvest as much of it as we want, today. Hermann often said that he supported nuclear fusion, because we have a perfectly good fusion reactor 93 million miles away that won't break down for another few billion years.

<sup>4</sup> That excludes Mixed Oxide (MOX), which is not material and is complex due to recycling. Fast breeders and fusion reactors are not currently available.

Most ordinary people seem to get this logic, and actually want the world's leaders to move forward with renewable energy, and not nuclear or fossil. And yet the huge progress that has been made on renewables over the last two decades is now being unwound around the globe, contrary to the wishes of most citizens. The EU had been leading the race for renewables, adopting supportive directives, that set targets, etc, and then encouraging other countries around the world through the Johannesburg Renewable Energy Coalition (JREC) to do likewise. Unfortunately, the more recent steps taken by the EU are working directly against renewable energy, through the latest phase of Internal Electricity Market integration, based on the discriminatory principles of the Target Model, through the selective tightening of state aid rules and many other restrictive planning related actions that are unduly focussed on renewables. At the same time, enormous worldwide subsidies to conventional energies continue to rise, conservatively estimated for fossil only at over \$520bn per year<sup>5</sup>, never mind nuclear energy, with its hidden subsidy through the civil liability guarantee, as well as the continuing non-payment of external costs by conventional energies (partly due to the EU's completely counter-productive Emissions Trading System). Despite all of that, it seems that the EU has caved in to the pressure from the large European utilities, who are now threatened by the significant growth of renewables, which has reduced their market share and eaten into their profits, even caused some of them huge losses.

Such negative developments would tend to reshape the renewables sector, by compromising commercial projects. But the genie is out of the bottle. Costs have been dramatically reduced to the point where power from an onshore wind project in Ireland is now cheaper than from the most efficient gas-fired power station<sup>6</sup>. Photovoltaic solar energy is already at grid parity in some countries<sup>7</sup>, and costs are likely to continue to fall. Although such projects continue to need support due to the high capital costs, we are at the point where individuals and communities could decide to go it alone for their own reasons, not relying on their projects to be highly commercially attractive. While that may not achieve large growth in output, sufficient to meet Government targets, it will drive the sector towards a decentralised model, and one where participation by ordinary people and communities could make concerns about what is termed 'social acceptance' a lot less relevant. Such a trend would really mark the beginning of the end for the large utilities, and maybe the end of the beginning of a new energy system.

To date, the vision for renewable energy has generally been a top down one, with notable exceptions in the early days in places like Denmark. Generally states decide the capacity of projects that have to be built to meet modest and rather arbitrary targets and to meet even more modest requirements of climate conventions (like Kyoto), and get their authorities to set the rules, adapt the national grid etc. Developers then move into communities to build commercial projects, and when resistance emerges, states believe the people have to be educated. This approach underlies much of the Green Paper, as might be expected from Government. A subtle shift in emphasis is now required to where Government takes more care in setting an enabling framework of policies, such as priority planning, a decentralised grid, offering fast priority local connections with guaranteed access and, where required, some sort of support. Government would then leave it to ordinary people to self-supply or develop small commercial and community projects, without the need for on-going policy and regulatory intervention.

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<sup>5</sup> [World Energy Outlook 2012, International Energy Agency](#)

<sup>6</sup> ["Embedding Sustainability, The business case for small wind energy.", Meitheal na Gaoithe, February 2013 \(supported by SEAI\)](#)

<sup>7</sup> where the cost per kWhr is the same as the retail price of electricity

As if to emphasise the point on grid decentralisation, a recent event has given us a further warning that centralised and overhead grids are a major vulnerability for modern societies, in addition to the risks to those networks from storms. One of the largest solar coronal mass ejections (CME) ever witnessed, just missed the Earth in July 2012<sup>8</sup>. Had it struck, it would have been lights out for electrical networks all over the world, and the damage would have been so severe that it would have taken a long time to bring them back. Before the next CME happens, and maybe hits us this time, we need to fully decentralise and underground the grid, while enabling citizens to securely make their own power.

James Carville,  
Chairman,  
Irish Wind Farmers Association

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<sup>8</sup> [www.theguardian.com/science/2014/jul/25/extreme-solar-storm-sun-earth](http://www.theguardian.com/science/2014/jul/25/extreme-solar-storm-sun-earth)

## Priority 1 – Empowering Energy Citizens

### *Questions and Policy Options*

1. How can we encourage citizens to be part of our transition to future energy paths and the policymaking process that goes with it? Given the scale of changes needed, what are the right mechanisms to engage citizens (e.g. would 'energy citizen' impact assessments for energy policy decisions or transition from written consultations to interactive workshops with interested stakeholders be more effective)?

2. What formal and informal mechanisms could be used to enhance citizen engagement with regulatory and policy decisions and how should they be structured? (e.g. should there be greater use of consumer panels?)

>> Questions 1 & 2 imply a top down approach to energy citizens, where the State is deciding and the citizen needs to be informed and persuaded. However, the best route to involving citizens is for Government to create the economic framework which empowers them to actually participate in the new energy system, to build small commercial and community renewable energy projects, and where they wish, to supply their own renewable energy for most of their needs.

3. How can we increase the rate of home retrofit radically? What can Government do to encourage citizens to undertake ambitious home upgrades in large numbers? Are there particular barriers that need to be overcome, such as lack of finance, information, and skilled professionals?

>> Again, enabling citizens to self-supply would quickly reveal to them the need to save energy, so as to reduce the amount of energy they need to produce and the cost of doing so. Pay as you save (PAYS) seems to be a good approach, but needs to be designed so as to cover the rental market. In some cases it is surely possible to add the cost of the upgrades into the mortgage on the property.

4. How can we raise awareness of the scale of the energy challenges facing us and the ways that citizens can be part of collective solutions? What can we do to improve citizens' access to energy information?

>> We need to start with a major well-funded Government information campaign run by SEAI to simply inform citizens' on energy self supply and small commercial and community renewable energy projects, also offering some grant support. Every household in the country should receive a book on all aspects of sustainable energy from SEAI.

5. How have other countries effectively engaged citizens in infrastructural development, and which innovative or interesting approaches could be helpful in Ireland?

>> The underlying idea of the question is again the need for 'social acceptance' of what Government decides. This term is now being questioned by social scientists as being too passive<sup>9</sup>, and as shown by recent developments, this approach has pretty much run its course.

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<sup>9</sup> ["Wind Energy in Ireland: Building Community Engagement and Social Support", NESC, report 139, July 2014](#)

6. Is there further scope for switching in the Irish retail electricity and gas markets to enable customers to avail of alternative price and product opportunities, or do the numbers indicate that Irish switching has plateaued? If there is indeed further scope for switching for consumer benefit, are there barriers that need to be overcome, such as availability of information or consumer difficulties with the switching process?

>> The emphasis of switching must now shift to self-supply.

7. Is micro-generation the most cost-efficient solution to decarbonising home energy, and who should bear the costs of any associated support scheme – consumers, taxpayers or industry?

>> It probably isn't the most efficient answer in the short-term from a purely economic standpoint, but that is not the only criterion by which people assess such decisions. Many citizens ask about self-supply to give them a sense of security and empowerment, as well as price stability. Being able to incorporate the cost into the mortgage would probably be the single most useful development. If citizens decide to proceed with self-supply, they can't realistically expect other consumers, or the wider energy industry to assist them. But SEAI should be funded to a much greater extent, in order to provide a lot more grants to incentivise citizens in making such decisions.

8. What is needed to ensure that smart meters enable greater consumer empowerment in the Irish energy market? Are there steps that should be taken to allow smart meters to play the fullest role in enabling greater consumer empowerment in the Irish energy market, in particular in relation to behavioural change, aside from CER's on-going preparations for the national smart meter rollout programme, and its associated regulatory decisions?

>> This programme is again a rather top-down measure, and while it will be valuable to citizens when interacting with the grid to manage their supply more economically, if they opt for self-supply, it will be of less value. Furthermore, the electricity market model being proposed by the SEMC works against a forward-looking 'active' market linking consumers through smart meters with variable energy sources, and will therefore leave citizens being 'not so smart' about how they consume fossil fuel derived energy, which is not what they want. In fact this may further encourage self-supply, so every cloud has a silver lining.



## Priority 2 – Markets, Regulation and Prices

### *Questions and Policy Options*

9. Given the success of Government policy on increasing competition to create downward pressure on prices, are the extent and effectiveness of competition and of competitive behaviour, in both the electricity and gas markets (wholesale and retail), sufficient, and are there any strengthening measures required, at regulatory and/or Government level?

>> The participation of smaller renewable projects and measures like 'supplier-lite' have ensured both competition and innovation at the lower end of the Single Electricity Market (SEM). However, the I-SEM proposal now on the table is set to undermine all of that, by making it really difficult, if not impossible, for smaller players to participate. The proposal needs to be adapted to employ a SEM-like pool as the balancing mechanism, in order to avoid the departure of these projects from the market, reducing competition and innovation. If this is not rectified immediately, it is quite likely that existing projects that are out of support<sup>10</sup> but are still perfectly sound, will shut down, taking capacity away from reaching targets, and then be repowered, in order to re-enter the support scheme, raising the PSO for no particularly good reason.

The wholesale electricity market comprises three related but distinct sub-markets: energy, generation capacity, and ancillary services, each of which is likely to be competition-based in I-SEM. The ancillary services market in particular will become a more material percentage of the overall wholesale electricity market, partly because more services will be required to enable the integration of greater quantities of variable renewables like wind. It is important that the DCENR, along with the CER, realise that the level of market power in ancillary services (and that which may be exercised in a less regulated generation capacity market) is not yet understood. It is therefore vital for the overall market, and for wind, that robust market power mitigation measures are put in place in the capacity and ancillary services sections of the wholesale electricity market, as is being done in the energy market itself.

10. Is the regulator strongly enough positioned and resourced – financially and in terms of human resources – to deliver its regulatory decision-making and advice roles as set in its legislation, and thereby to contribute to the achievement of energy policy outcomes and regulatory certainty and stability in the Irish market?

>> No. CER is heavily constrained by public service recruitment rules, when in fact it provides its own funds through the levy; so it should be able to hire as required subject only to scrutiny by the Oireachtas. CER and SEMC seem particularly poorly resourced in both legal and technical areas. They tend to ignore legal requirements, and need full time specialists to ensure they fully comply with both national and EU law. It is not clear how they are supposed to carry out their regulatory function of managing the grid authorities without a full time engineering team in-house, when the grid authorities themselves have so many specialists interacting with the regulators and effectively 'capturing' them.

11. Is CER's legislative remit appropriate for the purpose of regulatory certainty and stability?

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<sup>10</sup> it is estimated by [Scan Energy](#) that there is already around 700MW of wind out of support at this stage, and of course all projects eventually come out of support

>> No. It seems to be unclear to the regulators that they must comply with both national and EU law, BEFORE they make policy choices within that law. Over many years, we have seen CER and SEMC make policy choices where legal requirements and policy options are treated on the same level as if they could be traded off with one another. This is currently the case with the I-SEM draft decision, where binding targets and grid obligations are traded off against non-legally binding policy considerations. CER's objectives under the Electricity Act must therefore be spelt out properly, making this point clear to them.

We must also bear in mind that the interaction within SEMC is often unhelpful, and may obstruct CER in complying with its own obligations. For example, since EU renewable targets are binding at a State level, the target in Ireland is directly binding on the State and thereby CER, while it is noteworthy that Northern Ireland has no equivalent legally binding obligation regarding renewable targets, as it comes within the wider UK target. Within SEMC then, CER should be placing a higher emphasis on the State's legally binding EU target and the related grid rules, than on its national obligations to promote competition etc, since EU law is superior to national law, which must in turn be given higher priority than policy choices and regulatory rules. However as things stand, NIAUR faces a different hierarchy of rules, and can in fact treat its national legal obligations ahead of the EU binding target, although at the same time it should be treating the directly binding grid obligations in the Directive above its national obligations (which it doesn't seem to be doing). The Irish State, however, has no direct influence over the SEM Committee, which implements a balance of Ireland and Northern Ireland policy, relying on legislation that is duplicated in both jurisdictions. To clarify these anachronisms, CER needs to be directed by Irish legislation to fully comply with the binding national target and other related EU obligations ahead of other national obligations and not be able to trade any of those obligations off in negotiations with NIAUR, even if NIAUR itself is not so directly bound. Ideally, a similarly binding target would be adopted by the Northern Ireland Assembly, in order to bring the two sets of obligations fully into line. Failing that, the underpinning legislation for SEMC needs to be adapted on both sides of the border to clearly set out how the hierarchy of obligations applies to SEMC.

Regarding regulatory certainty, SEMC seems to disregard this concept altogether, having induced 5 years of gross regulatory uncertainty for renewable energy on the curtailment issue (from Feb. 2008 to March 2013).

12. Aside from the market integration initiatives as set out above and currently being worked on (the SEM 2016 project and EU electricity and gas code development and implementation), what should be Ireland's long-term approach to, and strategy for, electricity and gas market integration for the period after 2016, and how can appropriate governance at regulator and member-state level be provided for in the post-2016 market? What further actions can be taken at Government or regulator level to ensure that Ireland benefits from the EU internal energy market in gas and electricity?

>> It is necessary to start with a significant change to the proposed I-SEM market High Level Design, so that it doesn't exclude smaller players. And instead of looking backward to a 'passive' market concept, where conventional generators slavishly follow demand, the design concept should be looking forward a lot more to a market where consumers actively engage in making consumption choices, which then enables them, and therefore the market, to effectively follow variable generation sources. As it stands the design will punish variable sources for being variable, which is exactly the wrong signal for Ireland's future. If we want to get there, we shouldn't start here...!

13. Given the length of time since the establishment of the regulatory framework for CER, and the extent of additions to the CER functions since then, how should a review of the regulatory framework and/or CER's mandate best be conducted? The Action Plan for Jobs commits to the inclusion of a regulatory mandate review as part of the Green Paper process. In light of the implications of the market integration challenge for all players in the period up to 2016, should this review be partial or full? If a partial review is envisaged, should it be limited to how the regulatory framework and/or CER enable consumer understanding and citizen empowerment?

>> Given earlier comments, the proposed review is very important, and should get under way without delay, having particular regard to the fact that CER is not respecting national and EU law, and with a view to correcting this mistake before it is too late for I-SEM. The review should however not be fully concluded until the I-SEM design is completed to allow CER to focus on that important function.

14. Current Government policy on Ireland's transmission asset ownership regime is settled and the SEM Committee's requirements as regards certification must be progressed by both companies involved (EirGrid and ESB). What are the likely cost and benefit impacts for end consumers associated with the Commission's recommended changes in its certification decision? Assuming an overall sufficiently positive impact for consumers, how might these changes be best implemented?

>> The process by which the grid ownership issue was settled under Article 9.9 was almost totally in-transparent, and the market is barely aware that this has been done. This was no way for SEMC to conduct such an important step, so that the process wrecks of regulatory capture. For this reason, most market participants would feel unprepared to comment on the pros and cons or costs of what has been decided, or the implementation options. To rectify this mistake, the status quo ought to be fully reviewed within the next two years. In any case, it is quite ridiculous that an electricity market about the size of the City of Manchester has at least 4 major grid authorities (and that's just in the Republic). Since the boundaries between transmission and distribution are being blurred by the use of more embedded generation, and are likely to be further affected if and when we move towards a more 'active' market (as described above), then we ought to consider eliminating the increasingly arbitrary distinction between transmission and distribution, and merging these authorities, subject of course to compliance with the Third Package. The review might also consider if there is sufficient justification for the distinction between operation and ownership of the grid. However, should the whole come under one authority, then that must be completely legally separated from all other activities like market operation, aggregator functions, counter-trading, provision of ancillary service (from EWIC) etc.

While it has never been a specific consideration of the Third Package unbundling heretofore, it ought to be legally clarified that the production of ancillary services from network assets (such as EWIC) falls on the generation side of unbundling, while the application of these services by the TSO is a network function falling on the other side. Eirgrid as EWIC owner and TSO is therefore likely to find itself on both sides of unbundling, while also being the Market Operator. This apparent conflict of roles needs to be considered as a long-term unbundling issue, and in the meantime regulatory measures will be required here within I-SEM to address it. It is important that domestic transmission assets and interconnection do not become unregulated distorting influences in the development of the ancillary service markets. Ancillary services will become a key aspect of I-SEM, in order to enable the growth of variable generation on the system, so how the ancillary services market operates is of keen interest to the wind sector, even if it may not be too easy for wind to actually provide a broad suite of such services. EWIC's

provision of Ancillary Services will be in competition with generators also providing these services, and that could distort the Ancillary Services market if it is not addressed. Wind badly needs complementary flexible generation plant, whose investment cases will be underpinned by energy, capacity and ancillary service revenues. Ancillary services, under the DS3 Programme in Ireland, are the key to enabling conventional generation adequacy in a renewable-rich portfolio. Network unbundling/ring-fencing must be carried out in a manner that ensures – potentially beyond current European requirements – the all-island market requirement of non-distorted competition in the provision of ancillary services. It is of concern to the wind sector that EirGrid as owner of the Interconnector underpinned by Use of System charges (UoS), suggests the payment rates for the services, and is also the single buyer of these services, while being a producer as well. Future unbundling concerns would be that network infrastructure owned by the Transmission Asset Owner (TAO) or even the Distribution Asset Owner (DAO), also underpinned by UoS, could be used to participate in and distort the ancillary services market, undermining the case for further independent generation investment that would be complementary to wind.

15. Given that Government policy has sought to increase competition to create downward pressure on prices, are there unrealised opportunities in the pricing and regulatory framework for ensuring further price improvements, and, if so, what are they?

>> Yes. There are many inefficiencies in the current arrangements. Some ancient dirty power stations are being paid capacity for hardly running at all, in one case receiving over €30m for just running for one or two hours in the year. Admittedly, this is to disappear with I-SEM. Also, two state-owned power stations were permitted to locate behind a well known and long-standing network bottleneck in Cork, and have been paid some tens of millions every year in imperfection charges because they can't operate fully. And charging generation for grid connections, especially where the assets are shared, is the most economically inefficient way of recovering the cost of those assets<sup>11</sup>, and therefore the most expensive for the consumer. There is hardly much point in worrying about even more market competition when the Regulators allow this sort of thing to continue.

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<sup>11</sup> ["Efficient Funding of Transmission Network Connection Costs", KHSK Economic Consultants, Jan 2010](#)

## **Priority 3 – Planning and Implementing Essential Energy Infrastructure**

### *Questions and Policy Options*

16. What improvements to energy infrastructure are required to facilitate the transition to future integrated energy systems?

>> Reflecting the inexorable shift to the more decentralised nature of renewable energy supply, the key change is a shift in the design of the combined electricity transmission and distribution system to a decentralised model, where regions and even municipalities and localities manage their own supply and demand, and only use the national system to trade surpluses. Enabling each locality to function more or less independently would have the advantage of empowering localities, avoiding 'social acceptance' issues, reducing losses and mitigating the severe consequences of a national black-out for whatever reason.

17. How could the permitting and licensing processes for major energy infrastructure projects provide for greater collaboration and engagement with community stakeholders?

18. Following the 'Government Policy Statement on the Strategic Importance of Transmission and Other Infrastructure' in 2012, what additional improvements could be made to the permitting and licensing processes for energy infrastructure projects to make them clearer and more efficient for project developers, the public, and other stakeholders?

>> These questions are predicated on a centralist approach, therefore requiring so-called 'social acceptance', when a decentralised model would mitigate the underlying issues, by requiring fewer large scale projects and directly involving locals.

19. How can Ireland better collaborate with Northern Ireland and neighbouring EU Member States on a shared approach to supporting potential investment in building and accessing energy storage capacity in order to better use oil and gas fuel supplies and to facilitate further exploitation of variable renewable energy sources?

>> The proposal for a compressed air storage plant in Larne, in order to store electricity, is an example of good cooperation within the all-island market, that can help us move towards a more sustainable electricity system on the island. Such cooperation needn't go beyond the island and any idea that storage in Ireland will help renewable exports is misconceived. The focus on fossil fuel storage here or abroad repeats the mistake of enabling fossil fuels while claiming to bring Ireland to a low-carbon economy. The simple answer is to use less fossil fuel, not store more of it.

20. Is Ireland's electricity and gas infrastructure – including, but not limited to, interconnection – sufficiently developed for Ireland to be able to achieve the benefits of European market integration at least cost? How should Ireland continue to improve electricity and gas interconnections in the context of this integration and its security of supply policy objectives? What additional steps could be taken to facilitate this improvement?

>> Integration is all very well as regards competition and cost, but is not a panacea in terms of either sustainability or energy security. In many respects, it

makes us dependant on imports, which are not necessarily secure, and leads to termination of local supply, which raises insecurity. Indeed, the new EWIC interconnector is contributing to wind curtailment at various times, but the hope is that will be sorted by the I-SEM market. Where imports are made available via interconnection, but only called when there is an exceptional need, that is helpful. Whether under- or over-ground, the North-South Interconnector requires completion as a matter of urgency. Its absence is adding to curtailment of wind generation, and adding costs for the all-island consumer. Ireland's primary objective has to be complete self-sufficiency in sustainable energy before embarking on major export projects. Exporting sustainable energy while continuing to depend on non-sustainable sources at home is very short-sighted, leaving us insecure, facing cost risks and maintaining excessive emissions. A target for renewables of a mere 16% of primary energy or 40% of electricity in 2020 is far from being enough ambition for Ireland given our resources and vulnerabilities, and ideally we ought to be aiming at 100% for 2030. An export plan could then be set on top of the domestic plan.

21. Does the existing regulatory regime underpin and incentivise appropriately investment in existing and potential future electricity and gas interconnection infrastructure and/or full consideration of its alternatives, on a cost-effective basis?

>> No. Costs that should be incurred by the grid authorities due to the inadequacy of grid development, such as constraint and curtailment costs (especially during so-called 'non-firm' periods), as well as lost REFIT revenue, are mistakenly attributed to generators, removing the economic signal to the grid to sort out the underlying causes. Connection costs, including shared assets (which the grid has to own and operate), as well as deep distribution costs, are also loaded onto generation projects, removing any incentive to keep these costs down. The final rub is that all connection assets must then be handed to the network for free. The introduction of the Target Model in the EU's Internal Electricity Market should provide natural signals for the development of further Interconnection as required, i.e. energy price differentials between neighbouring markets. However, in order to maintain proper competition in the ancillary services markets, so as to enable plant complementary to wind, we would urge caution about the unfettered access of UoS supported interconnection and transmission assets into those markets. Also, a more cost effective and generally more efficient grid would be decentralised, but there appears to be no regulatory pressure or even concept for moving in that direction.

22. In light of continued reliance on oil to 2030 and beyond, what is the best approach to monitoring and ensuring the capacity of Irish oil infrastructure? What measures should be taken to facilitate the commercial future of oil refining in Ireland?

>> Given the aim of moving to a low-carbon economy, which should be dramatically accelerated and changed to a 'no-carbon' economy, there are no further improvements required to the fossil fuel infrastructure, which will be seriously over-capacity in the years to come, with a lot of stranded assets.

## Priority 4 – Ensuring a Balanced and Secure Energy Mix

### *Questions and Policy Options*

23. How can we reduce our high dependence on oil and gas?

>> By dramatically accelerating our shift to renewable energy, even if that is a little costly during the transition. The extra costs would be more than compensated for by effectively insuring against major economic disruption caused by energy insecurity events.

24. How best should we ensure that appropriate framework conditions are in place for secure markets and infrastructure with sufficient capacity and investment in the medium to long term?

>> The most secure system is one relying entirely on our own renewable energy, used efficiently. We need to shift to a decentralised approach, actively enable and involve people, small players and communities, dramatically increase energy saving and self-supply, finally get the electric cars on the road in volume and shift heating to a mix of biomass and electricity. With the right incentives in place, much of this would be funded by individuals and communities, so that finance per se is not the primary issue.

25. How can we optimise the policy and regulatory environment to enable the market to decide on an appropriate fuel mix from a grid, market design, carbon, cost and energy security perspective? Are current policy and regulatory instruments sufficient or are additional interventions required, and what should those be?

>> The current national energy policy lacks vision and is internally contradictory. We need to start by eliminating those contradictions, such as aiming for low-carbon and then further facilitating fossil fuel exploitation and use. 100% renewables, as adopted by Denmark, is the appropriate and ultimately the only viable Government vision for Ireland, but at an earlier date, given our prodigious and competitive sources and our serious vulnerabilities. Having thus settled the fuel mix and security issues, we would need to gradually shift to a decentralised and underground grid, appropriate to the task<sup>12</sup>, and incentivise self supply by individuals, communities, and businesses. The regulators and other authorities would have to be directed by Government to stop imposing undue costs on our renewable sources, which they all see as an easy touch. The purpose of carbon taxes and excise duties on fossil fuels needs to be appropriate to the overall policy and clarified in law, to avoid inappropriate implementation by the Dept. of Finance or Revenue. Taxes are usually set to optimize the tax take, a policy which leads to the State being the biggest addict. Once we agree a date for the complete phase out of fossil fuels, the tax regime needs to be designed to achieve that, including elements that make up tax shortfalls in other ways appropriate to the policy; for example infrastructure charging to cover reduced taxes from transport fuels and property taxes to cover for losses of taxes on heating fuels).

26. Given that Moneypoint will approach the end of its life by 2025, is there a role

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<sup>12</sup> AC in the short term, moving to more efficient DC as the power electronic switching and transformer technologies are developed

for coal in the future power-generation fuel mix, taking into account cost, security of supply and environmental issues? If coal generation does not continue at Moneypoint, what are the alternatives? Should options such as biomass or nuclear power be considered?

>> Absolutely not on every count. Coal is a fitly fuel, and should disappear altogether from Ireland with the end of Moneypoint's life, having helped us through the next decade of transition. Unproven clean coal technology does not help the situation at all. Using biomass instead would waste more than 50% of the primary energy, and under no circumstances should Ireland seek to develop such power stations with biomass, unless a very high proportion of the waste energy can be used in heating. The notion that Ireland, a long standing opponent of nuclear energy in all its forms, which had the good sense to avoid that cul-de-sac, would in a post Windscale/Chernobyl/Fukushima world even consider going down such a foolish route is something that brings the whole Green Paper's credibility into question. The reduced emissions of nuclear can easily be achieved with indigenous renewables, and on cost, safety and even energy security, nuclear is simply a non-starter.

27. What strategy is needed to support the continued increase of renewable energy on the electricity grid? Are new approaches needed?

>> Yes. Government should declare a 100% renewable vision for say 2030, and much of the detail will follow that first step. Again, we need to stop piling costs onto renewables (such as quadrupling rates!) to the point where at least onshore wind becomes more (and eventually fully) market competitive, and we need to continue to support and develop some quantities of other less competitive renewables, such as solar PV (particularly near the South coast), offshore wind, wave and tidal energy. We should now set out on a path to have a largely decentralised grid by 2030, with guaranteed and priority access, where the connection cost is carried by the system (which is the most economically efficient approach), and guaranteed transmission to eliminate constraint and curtailment (or at least full compensation where they do occur), facilitated by appropriate storage projects using new technology. Market and grid rules need to avoid putting obstacles in the way of storage, and should indeed facilitate the addition of storage units to renewable energy projects, using their existing grid capacity. There needs to be a fully independent external technical review of the grid dynamic stability issue, since it is becoming very apparent here and abroad that Eirgrid's leading position on this issue worldwide has allowed it to make overly conservative assumptions, thus blocking renewables development. Also, Ireland needs to establish priority planning for renewables, including for self-supply.

28. What are the security, carbon and cost implications of alternative transport fuels including electricity, biogas, biomethane, LPG, LNG and CNG? What supports or policy interventions will be required to achieve the switch to these alternatives?

>> The Appendix illustrates that new electric transport, even today, is far more energy efficient than fossil-based transport. Some electric vehicles are 5 to 10 times more efficient and therefore use the same energy per passenger kilometre as walking or cycling, meaning that costs are dramatically cheaper than any form of fossil transport. The only issue is capital cost, and battery technology development and mass production will soon address that<sup>13</sup>. We now see the development of electric vans, trucks, even planes, and we may soon have electric

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<sup>13</sup> [for example the Tesla-Panasonic proposal for a giga-factory in the US with high volume battery production](#)



powered-ships. In this context, the very idea that Ireland would invest heavily in any other form of future transport, especially given our capacity to produce cheap clean electricity from renewable energy, is a little ridiculous. Ireland should continue the roll out of electric charging infrastructure and considerably extend the grants and reliefs for electric vehicles. Transport taxes previously collected through fossil fuels could instead be collected through infrastructure charging, which is the ideal approach in any case.

29. What options should we pursue to incentivise switching to cleaner lower-carbon heating fuels?

>> Heating is the most difficult area to address with sustainable policies, so the next step has to be to dramatically extend measures designed to raise the efficiency of buildings. Self-supply that incorporates power and/or heat storage can go some way towards addressing the issue. Otherwise electric heating can help the plan to phase out the use of fossil fuels. All of these will require measures to help citizens fund their upgrades, and a combination of grants, mortgages and PAYS are the only obvious solutions at this time.

30. How best should we further develop and implement streamlined and integrated oil, gas and electricity emergency planning and control frameworks to ensure resilience to fuel-supply disruptions and external energy shocks?

>> Firstly, the faster we phase out fossil fuels, the more secure we will be. Emergency planning can't cope with every eventuality, rather it serves to reduce worries more than solve actual problems. Local production of renewable energy can mitigate virtually all energy security eventualities.

31. What options should we pursue to enhance oil, gas and electricity storage? Should we explore further the potential for additional oil stocks to be deployed as secondary fuel in the event of gas disruptions? What are the costs and benefits of delivering energy storage, and are there alternatives?

>> None for oil and gas, since we ought to be rapidly phasing them out. Electricity storage will be a key aspect of the future energy system, and many different technologies will be used, like compressed air storage (eg: in Larne), fixed and mobile batteries, 'Power to Grid' (P2G), possibly Hydrogen for large motive power (like ships), and so on.

32. What further efforts are required to pursue indigenous development of hydrocarbons and ensure suitable conditions for development on the island to improve Ireland's security of supply position? What additional actions should we take?

>> In the time horizon required for real success and results in this field, we ought to have abandoned fossil fuels altogether, so such efforts are in fact likely to lead to stranded assets (or at best the export of fuels that contribute to climate change), and wasted effort and investment, more usefully directed to a fully renewable future.

## **Priority 5 – Putting the Energy System on a Sustainable Basis**

### *Questions and Policy Options*

33. How should cost-effective sustainable energy be promoted and supported? What are the appropriate support and regulatory frameworks to do this, ensuring both regulatory certainty and protection of the long-term interest of consumers? Is there a role for solar, offshore wind, wave, tidal or other technologies?

>> Government should declare a 100% renewable vision for say 2030, and much of the detail will follow that first step. Again, we need to stop piling costs onto renewables (such as quadrupling rates!) to the point where at least onshore wind becomes more (and eventually fully) market competitive, and we need to continue to support and develop some quantities of other less competitive renewables, such as solar PV, offshore wind, wave and tidal energy. We should now set out on a path to have a largely decentralised grid by 2030, with guaranteed and priority access, where the connection cost is carried by the system (which is the most economically efficient approach), and guaranteed transmission to eliminate constraint and curtailment (or at least full compensation where they do occur), facilitated by appropriate storage projects using new technology. Market and grid rules need to avoid putting obstacles in the way of storage, and should indeed facilitate the addition of storage units to renewable energy projects, using their existing grid capacity. There needs to be a fully independent external technical review of the grid dynamic stability issue, since it is becoming very apparent here and abroad that Eirgrid's leading position on this issue worldwide has allowed it to make overly conservative assumptions, thus blocking renewables development. Also, Ireland needs to establish priority planning for renewables, including for self-supply.

34. What options are available to encourage private investment in energy efficiency and ensure the transition to non-Exchequer funding models for energy efficiency?

>> Further progress on PAYS and efforts to include upgrade costs in mortgages.

35. How might supports for sustainable energy measures be made more predictable and transparent, and more effectively attract cost-competitive investment in renewable electricity, heat and transport?

>> Currently, REFIT is undermined both as regards viability and certainty, by constraint and curtailment on the revenue side, and endless new charges on the cost side (connections, rates, forestry, etc), as well as sheer complexity. The current I-SEM proposal would introduce a whole new set of costs, uncertainties and complexities and this must be tackled now, before it is too late. Removing these added costs and making REFIT simpler and more certain could lead to some reductions in the REFIT reference prices, and that is the best route to reducing cost to the consumer while securing growth in the sector through reduced uncertainty - a win-win. Furthermore, redesigning REFIT so that it cannot be regarded as state aid ought to be a major goal of DCENR for the support scheme, allowing Government to continue to pursue policies best suited to Ireland's needs, while having the flexibility to adjust to evolving circumstances.

36. How can Ireland best develop sustainable energy solutions that meet our long-term international climate obligations? Which pieces of energy infrastructure

should be our priorities for climate adaptation?

>> Setting a goal of 100% renewable primary energy by 2030, which is doable with the right will, would put us well ahead of our climate commitments and responsibilities. For all sorts of reasons, already outlined, we ought to be decentralising and undergrounding our grid, which would help climate mitigation as well.

37. How do we ensure cost-effective and timely investment in electricity transmission and distribution, including in smart grids?

>> We most certainly don't do it by loading all costs and responsibilities onto the generators, who are amongst the least able to deal with them. Costs must arise for the parties in the best position to deal with the causes and the risks. All losses due to any delay in connecting renewable energy projects for more than 3 years must be for the account of the consumer in the first instance, and be dealt with accordingly by CER whose responsibility it is to protect the consumer from such costs; otherwise CER has no incentive to sort out the underlying issues, and can simply apply the costs of someone else's ineffectiveness onto those who can't sort it out. And some of that cost must affect the financial performance of the grid authorities, otherwise they have no incentive to perform. The performance to date of all these parties, manifested in 15 year delays to connect renewables with firm access for example, serves to prove the point.

38. How can we exploit Ireland's sustainable energy strengths to realise job creation and economic growth opportunities?

>> Renewable energy has the highest job content per unit of energy, and feeds the most economic activity back into Ireland (assuming we get going properly and start to build the factories to produce equipment, like turbines and copper and/or aluminium cables). So a 100% renewable policy is the one which will deliver the economic activity, the most temporary jobs and permanent high quality jobs in the long run. Adding exports thereafter could place the sector beside tourism, agriculture, pharmaceuticals and IT as one of our largest industries.

39. Are the optimal structures in place to deliver sustainable energy and realise the associated jobs and growth opportunities? Are existing policy interventions for sustainability (e.g. public service obligation, priority dispatch, efficiency measures) consistent and aligned?

>> No on both counts. There is no overall vision, and the hope is that this will finally emerge from the current process. An unequivocal 100% renewable energy vision for say 2030 is what will kick start the process, quickly followed by appropriate market, grid, support, energy saving, transport, heating, tax and planning policies, as already outlined. Inefficiencies in the grid policy as regards connection cost, constraint and curtailment etc, cause uncertainty and higher cost for projects, thus preventing a reduction in the REFIT reference prices, and maintaining a higher PSO than is necessary. Instead, enforcing the EU legal obligation of 'guaranteed transmission' would allow projects to benefit from their full output at the support price, and to finance their projects with a lower

financing cost due to lower risk, thus enabling a price review of the REFIT, and analysis suggests that the overall cost to the consumer would be less<sup>14</sup>.

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<sup>14</sup> [For example: "Improving the Wind Development Model", Meitheal na Gaoithe Annual Conference, Lyrath Hotel, 9th Nov 2012](#)

## Priority 6 – Driving Economic Opportunity

### *Questions and Policy Options*

40. What skills and training are required to underpin the energy system in 2020? How should training for the energy sector be organised?

>> Assuming we decentralise the grid, have greater self-supply, and shift to a largely electric transport system, we will need extensive skills and training in these areas. The current uncertainty in the renewables sector will lead to a failure to attract new skilled people, and only when a truly credible and ambitious vision is in place and the action really starts will young job-seekers naturally turn to the sector for training and a long-term future.

41. How can energy policy be designed to maximise and grow Irish employment in the sector in the long term?

>> Much greater ambition, as outlined in the previous answers.

42. How can Government funding for R&D in the energy field be best targeted to maximise the potential for the commercialisation of IP emerging from such R&D?

43. How should research funding organisations modify their support programmes?

44. How should Ireland best position itself to maximise the benefit from Horizon 2020?

>> As regards R&D, there is very little point in Ireland duplicating or competing with energy research underway elsewhere. Assuming we take advantage of our unique position as regards vulnerabilities and the compensating resources, and we do set a very ambitious vision, and then follow through, that will open up niche markets in IT, control systems, transport technologies, market design, grid decentralisation and so on, where we could develop new IP and offer that to others who would like to follow. If on the other hand we are not ambitious, and instead we take the economists lead and choose as usual to follow others, then we will simply waste our money in R&D, reinventing the wheel.

45. What else should be done to maintain and improve the integrated innovation support process, from basic research to commercialisation?

>> The extraordinary work of William Kingston of the Trinity College Business School can help clarify issues around innovation<sup>15</sup>. Inventing a new product that is patentable is normally the result of individual effort<sup>16</sup>. Quite often, a different individual (an innovator) sees the potential of the invention, and takes it to commercialisation<sup>17</sup>. Traditional large scale R&D on the other hand is normally more collaborative, and is less likely to produce original inventions. At this stage, Ireland is not inventing in the renewables space, and has little call for traditional large scale R&D, with the possible exception of wave and tidal. However, small players are usually highly innovative, and indeed have had to be so to survive in the difficult environment provided by the authorities here. In any case, to move Ireland on to a 100% renewable society will require the use of other peoples'

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<sup>15</sup> for example his book "Innovation, The creative impulse in human progress", John Calder, London, 1977.

<sup>16</sup> examples in the renewables sector could include Henrik Stiesdahl of Siemens, or Aloys Wobben of Enercon

<sup>17</sup> high profile examples would be the late Steve Jobs of Apple, or Elon Musk of Tesla

inventions and R&D, and some of our own innovation to make it all work together. To drive that innovation, we need the signal that Ireland is serious about getting there.

46. How can there be more collaboration and on-going structured interaction between researchers, modellers and policymakers to ensure that energy research and modelling address the real energy policy problems including impacts on citizens, and challenges as policymakers perceive them, and that the resulting analysis and publications have policy relevance?

>> The question seems to imply a lack of understanding of the processes outlined in the previous answer. Collaboration doesn't really work for or help inventors or innovators, although they do need to gather information. Ireland has a limited role in basic R&D in this space. Modelling is extremely useful as we proceed to the objective, but can only really get underway once there is a vision and a rough plan. Citizens will not be worried about 'impacts' if they are directly involved. Government setting the vision, guided by policy makers, is what is now required, and that will kick all of these into shape.

47. Do any other areas within the energy/enterprise policy space need to be addressed in the forthcoming Energy White Paper?

>> A serious move towards the 100% renewable goal will require vast financial resources and Ireland is currently lacking credit internally, for obvious reasons. Government will need to set about releasing funds from its strategic bank, pension funds, other jurisdictions and from the likes of the European Investment Bank to minimise the financing cost of so many projects.

Appendix

