Ms. Justice Mary Laffoy
Chairperson
The Citizens' Assembly
16 Parnell Square
Dublin 1, D01 X9Y2.

Friday 11 August 2017

Submitted online at www.citizensassembly.ie

Dear Chairperson,

The document attached sets out the views and observations of the Irish Wind Energy Association (IWEA) on "How the State can make Ireland a leader in tackling climate change", as proposed by the Assembly. IWEA very much welcomes the opportunity to make this submission. As you have already noted climate change, and what individual nations can do to impact and influence this issue is a matter yielding substantial public debate across the world.

IWEA is the leading renewable energy representative body in Ireland and as such has an active interest in the potential and capacity for renewable energy development, and in particular wind energy, in Ireland. IWEA works in a proactive and engaging manner with stakeholders in this area and as such feels it is both appropriate and important to make a submission on this subject.

IWEA believes Ireland can have a significant role in tackling climate change. The challenges posed by climate change are a huge risk to Irish citizens and could have significant financial implications for the country over time. However, the opportunities that arise in embracing the change and reform needed in Irish society to tackle climate change have the potential to create thousands of new jobs, result in cleaner air quality and a more environmentally sustainable way of life for a growing population.

The decision of the Citizens' Assembly to meet on this matter over two weekends this Autumn is extremely important. The forthcoming national dialogue proposed by the Minister for Communications, Climate Action and Environment similarly offer an opportunity for citizens to gain a broader understand of what Ireland has already achieved and why we need to increase our efforts in this regard.

The IWEA submission reflects our views in this regard and we would welcome an opportunity to engage with the Citizens' Assembly at its public sessions and explain how Ireland is a world-leader in renewable electricity production already and to describe how this has placed Ireland in a potentially leading position to tackle climate change.

Yours sincerely,

Adam Ledwith.

Adam Ledwith
Head of Communications and Public Affairs

Submission to The Citizens' Assembly

IWEA Position Paper: 'How the State can make Ireland a leader in tackling climate change'

Friday 11 August 2017

Summary

IWEA would welcome the opportunity to address the Citizen's Assembly to explain how Ireland is a world-leader in renewable electricity production and to describe how this has placed Ireland in a potentially leading position to tackle climate change.

IWEA believes that Ireland has the resources, skills, knowledge, and investment to lead the transition to a 100% renewable energy system by 2050, primarily based on existing technologies. It is essential that we set this ambition for our energy system so we can reserve Ireland's carbon emissions for the agricultural sector, where unlike the energy sector, there are no obvious alternatives to our current practices.

This IWEA Position Paper provides a short overview of the technical changes required to make Ireland a leader in the transition towards a 100% renewable energy system, and explains why it is an economic opportunity that can create jobs, bring investment to rural Ireland, and improve our security of energy supply without increasing the cost of energy for the consumer.

Technical Transition to a 100% Renewable Energy System

Electricity is the highest quality energy we can produce: it can provide all forms of demands, including heat and transport, and it can be used to create intelligence i.e. via electronics and computing. Ireland is in a very fortunate position since it has one of the best renewable electricity resources in the world in the form of onshore wind. As Ireland's National Mitigation Plan rightly notes, this means that "*Onshore wind has to date been the most cost-competitive renewable electricity technology in Ireland*". Electricity will be an essential part of tackling climate change, so with this resource, Ireland is ideally placed to lead the transition to renewable energy.

This transition has already begun in recent years with an exponential growth in renewable electricity in Ireland due to the development of wind energy (see Figure 1): it is now the second largest form of electricity generation in Ireland (after gas), providing 22.8% of Ireland's annual electricity demand in 2015.

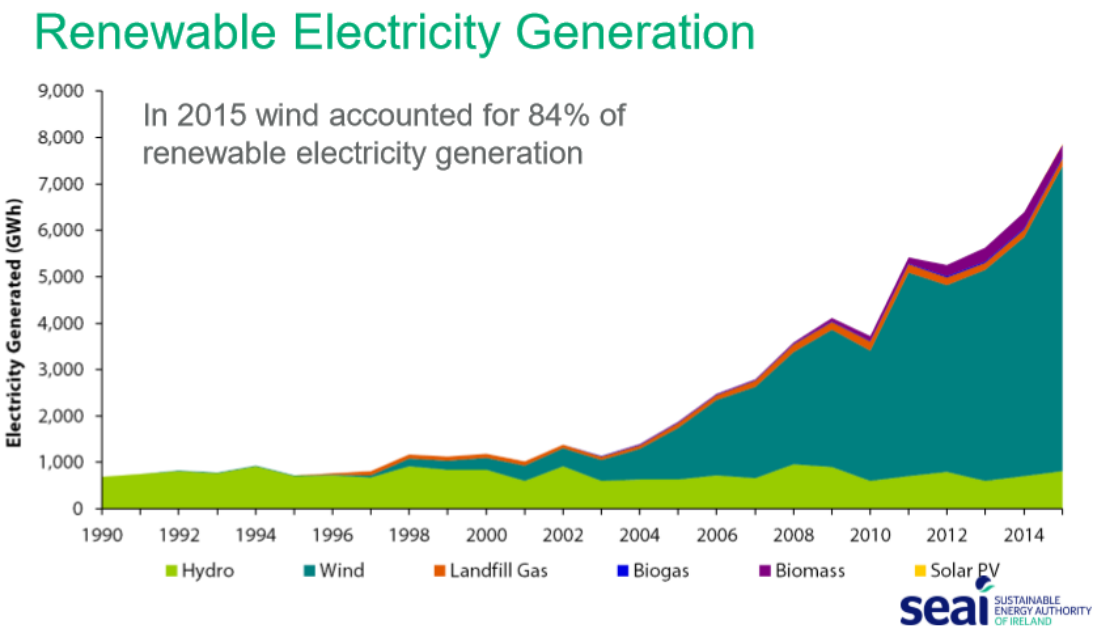

Figure 1: Renewable electricity generation in Ireland from 1990-2015

Renewable electricity is vital to tackle climate change since it can be used to remove carbon emissions from other sectors also. In brief, the key steps for a 100% renewable energy supply are as follows:

- Phase 1: Produce renewable electricity. Onshore is the lowest cost form of renewable electricity in Ireland, but other factors may require some renewable electricity from alternatives such as offshore wind, solar, tidal, and wave power.

- Phase 2: Electrify Ireland's heat and transport demands. The best place to start is by converting rural heating from oil to heat pumps, and by converting cars from combustion engines to electric vehicles.

- Phase 3: Utilise storage in heat and transport to balance renewable electricity. Thermal storage is approximately 100 times cheaper than electricity storage, and fuel storage is approximately 10,000 times cheaper than electricity storage, so by electrifying heat and transport, Ireland can balance its renewable electricity in a cost-effective manner using these relatively cheap forms of energy storage.

There are a lot of specific issues which need to be addressed in each of these phases, but the key message is that Ireland has access to low-cost renewable electricity, which can form the basis for a 100% renewable energy system across electricity, heat, and transport.

In addition, Ireland will need much less energy when electricity is used to supply heat and transport. For example, electricity is approximately three times more efficient at supplying heat (via heat pump) and transport (via electric cars) than the fossil fuel alternatives. Therefore, by electrifying heat and transport Ireland will be able to utilise its cheap onshore wind resource and at the same time, significantly reduce the demand for energy.

Ireland needs to rapidly increase its efforts in phases 2 and 3 of the transition above. As displayed in Figure 2, Ireland is making good progress in renewable electricity production (phase 1), but very little progress in heat and transport. To put these numbers in context, Ireland's renewable heat target for 2020 is 12% while Sweden has already reached a renewable heat penetration of over 60%. Therefore, there are existing technologies which can be adopted from other countries to accelerate Ireland's transition to renewable energy.

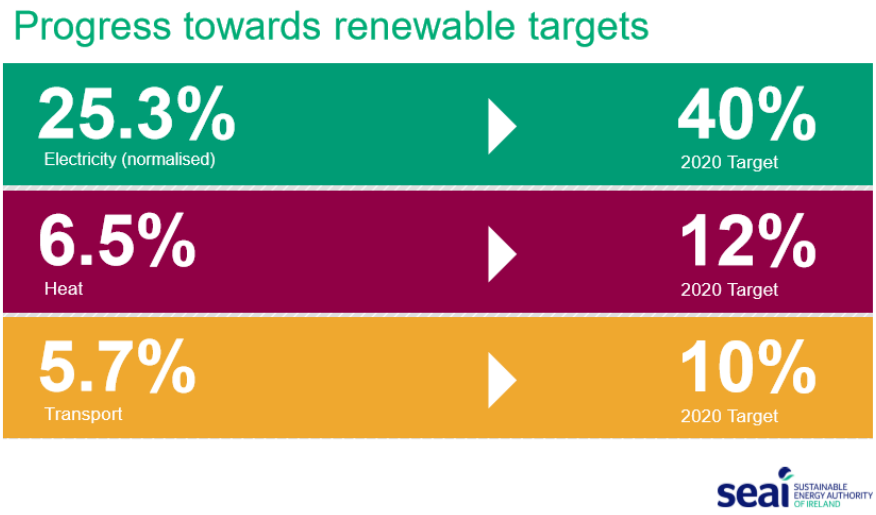

Figure 2: Renewable energy penetration in electricity, heat, and transport in Ireland in 2015 (left) compared to the 2020 targets for these individual sectors (right).

Economic Opportunity of a 100% Renewable Energy System

Ireland's wind energy resource is large enough to supply all of our energy needs, but we currently import over 85% of energy from other countries. These energy imports cost Ireland approximately €5-6 billion/year (€15m per day) which has a very negative impact on Ireland's trade balance: to put this in context, this is the same amount of revenue that is generated from all tourists in Ireland in 2015. Renewable energy is not based on energy imports, but is instead based on local investments in infrastructure. Therefore, when fossil fuel is replaced with renewable energy in Ireland, we reduce on dependency on imported energy and instead redirect this money towards domestic investments in energy infrastructure. A similar concept is often used in Ireland's agricultural sector, where Irish food is often promoted based on the merits that it keeps money within the Irish economy. Research indicates that making the switch from imported fossil fuels to renewable energy could result in approximately 100,000 additional jobs in the energy sector in Ireland, so IWEA believes that the transition to a 100% renewable energy system should be viewed as an economic opportunity for Ireland rather than an economic burden.

A similar trend is already evident from the onshore wind development that has taken place in Ireland to date. If wind power did not exist in Ireland, then electricity would be produced from a few large power stations that are mostly located in Dublin, Cork, and Clare, primarily consuming imported coal and gas. Very few local communities benefit from these fossil-fuel based power plants and the majority of the money in these facilities is spent on the import of their fuel. However, there has been a change with the introduction of wind energy in Ireland. There are approximately 200 wind farms in Ireland at present and these wind farms have resulted in over €4 billion of investment across most of Ireland. Based on a survey of IWEA members, we estimate that approximately 4500 people are directly employed in the wind sector in Ireland demonstrating how the sector has replaced energy imports with domestic jobs. Furthermore, over €20 million is currently paid to county councils in rates each year by existing wind farms, primarily to rural counties such as Donegal, Galway, Limerick, Kerry, Tipperary and Cork. Some of these wind farms also offer local community benefit schemes to improve the local area: for example, IWEA's "Best Practice Principles in Community Engagement & Community Commitment" recommends a community benefit scheme of €60,000/turbine for new wind farms being developed at present. Under this scheme, a typical wind farm with 10 turbines will contribute approximately €600,000 to the local community over its lifetime. This investment, job creation, local authority payments, and community benefit schemes demonstrate how renewable energy in the form of onshore wind is converting imported fossil fuels into a domestic economic benefit.

These benefits can be realised without increasing the cost of energy for the final consumer. As outlined in Figure 3, onshore wind is the cheapest form of renewable electricity currently available and is competitive with the cheapest form of electricity production from fossil fuels i.e. baseload coal. A 100% renewable energy system in Ireland can be based on this cheap renewable electricity and therefore, research suggests that a 100% renewable energy system in Ireland has comparable costs to a fossil-fuel alternative. Therefore, Ireland can lead the efforts to tackle climate change while creating jobs, improving security of supply, and boosting the economy in rural Ireland without increasing the cost of energy for the consumer.

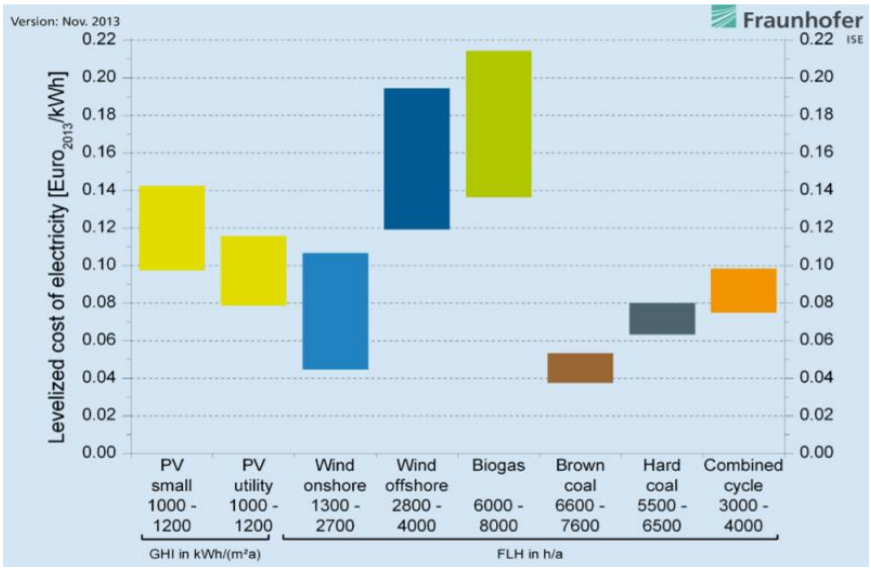

Figure 3: Cost of electricity from different sources, indicating that onshore wind is the cheapest form of renewable electricity and comparable in cost to the cheapest baseload coal-fired power stations. Source: Fraunhofer.

Community Ownership and Engagement

IWEA believes greater social acceptance in host communities and prospective host communities of renewable energy projects is crucial to achieving increased participation in the development of renewable energy in Ireland.

> *"It is clear much more work needs to be undertaken proactively in local communities to reach out, build relationships, confidence and trust with the public. It is important that this is done in a timely and transparent manner. This will require leadership both inside and outside of industry." – IWEA Chief Executive Dr. Gary Healy*

IWEA is committed to working with policymakers on clear achievable reforms in this area. IWEA believes this work would benefit from the existence of new strategic partnerships with community-based organisations and clear national policy objectives that include a proactive dialogue on a regular basis with the public.

IWEA supports efforts to bring about a more open and welcoming environment for renewable energy projects throughout the country. IWEA believes the empowerment of local communities through greater access to independent information is a significant part of achieving greater awareness of the importance of renewable energy and social participation. IWEA believes local authorities should be resourced and financed to provide this support to communities and developers. There is a clear role for local government and central government in communicating national energy policy and promoting the importance of renewable infrastructure and investment.

While most wind and renewable energy projects in Ireland have been successfully and sustainably delivered through private sector investment, IWEA recognises and welcomes the desire to diversify ownership structures. IWEA produced a document in Spring 2017 entitled An Irish Energy, the first sectoral perspective on approaches to shared ownership of renewable energy projects**.** It provides a clear industry perspective alongside 10 policy recommendations to enable joint shared ownership approaches which are viable and can succeed. IWEA believes if communities can acquire a stake in projects they are more likely to be disposed to facilitating a project in their community.

IWEA believes that shared ownership should play a role as an option in Ireland's future renewable energy development alongside current community benefit schemes. For shared ownership to be successful it must work for all parties, and there must be a stable regulatory environment. For informed decision-making communities will require access to expert finance for advice, planning and project development support from the earliest stages. Shared ownership is an investment and like all investments, it involves risk. This risk must be clearly explained, acknowledged and where possible, mitigated against.

Conclusion

Ireland has access to one of the cheapest renewable electricity resources in the world, in the form of onshore wind, and we have already developed a mature industry to deliver this technology. This renewable electricity can be used to supply renewable energy for heat and transport also, by electrifying our demands using heat pumps and electric vehicles. By doing so, Ireland can move from importing unsustainable fossil fuels to domestic investments in renewable energy infrastructure, which can create more jobs, bring investment to rural Ireland, and eliminate our energy-related carbon emissions.