

# DÁIL ÉIREANN

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## AN COMHCHOISTE UM CHUMARSÁID, GNÍOMHÚ AR SON NA HAERÁIDE AGUS COMHSHAOL

## JOINT COMMITTEE ON COMMUNICATIONS, CLIMATE ACTION AND ENVI- RONMENT

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*Dé Máirt, 28 Feabhra 2017*

*Tuesday, 28 February 2017*

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The Joint Committee met at 5p.m.

### MEMBERS PRESENT:

Deputy Timmy Dooley,	Senator Maria Byrne,+
Deputy James Lawless,	Senator Martin Conway,*
Deputy Michael Lowry,	Senator Tim Lombard,
Deputy Eamon Ryan,	Senator Michael McDowell,
Deputy Bríd Smith,	Senator Ned O'Sullivan.*
Deputy Brian Stanley,	

\* In the absence of Senators Joe O'Reilly and Terry Leyden, respectively.

+ In the absence of Senator Tim Lombard for part of meeting.

DEPUTY HILDEGARDE NAUGHTON IN THE CHAIR.

## BUSINESS OF JOINT COMMITTEE

### **Business of Joint Committee**

**Chairman:** I remind members and delegates to turn off their mobile phones or switch them to flight mode as they interfere with the sound system and make it difficult for the parliamentary reporters to report the proceedings of the meeting.

By virtue of section 17(2)(l) of the Defamation Act 2009, witnesses are protected by absolute privilege in respect of their evidence to the joint committee. However, if they are directed by the Chairman to cease giving evidence on a particular matter and continue to do so, they are entitled thereafter only to qualified privilege in respect of their evidence. They are directed that only evidence connected with the subject matter of these proceedings is to be given and asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person or an entity by name or in such a way as to make him, her or it identifiable. I also advise them that any submission made or opening statement submitted to the committee will be published on its website after the meeting.

Members are reminded of the long-standing parliamentary practice to the effect that they should not comment on, criticise or make charges against a person outside the Houses or an official, either by name or in such a way as to make him or her identifiable. It is proposed the meeting will deal first with the election of the Vice Chairman, second the scrutiny of EU legislative proposals, schedule A, high priority, the clean energy for all Europeans package, and third, the effect of the proposed withdrawal of the United Kingdom from the European Union, on the energy market in Ireland.

For the second item, it is proposed one question will be put from the Chair to decide whether further scrutiny is required. Any further debate will take place in private session. At the conclusion of the public session, the meeting will suspend for five minutes and the committee will then resume in private session. Is that agreed? Agreed.

### **Election of Vice Chairman**

**Chairman:** I invite nominations for the position of Vice Chairman.

**Deputy Timmy Dooley:** I wish to propose my colleague, Deputy James Lawless, for the position of Vice Chairman.

**Senator Ned O’Sullivan:** I second that.

**Chairman:** As there are no other nominations, I declare Deputy James Lawless elected as Vice Chairman. I congratulate him on his election.

**Deputy James Lawless:** I thank members and look forward to working with the committee, as well as assisting the Chair in the important job we have ahead.

**Chairman:** I thank the Deputy and look forward to working with him.

### **Scrutiny of EU Legislative Proposals and Impact of Brexit on the Irish Energy Market: Discussion**

**Chairman:** The next two items will be taken together.

I welcome Mr. Garrett Blaney, chairman, the Commission for Energy Regulation and Ms Aoife MacEvilly, commissioner, the Commission for Energy Regulation; Mr. Jim Gannon, chief executive officer, Sustainable Energy of Authority of Ireland and Dr. Eimear Cotter, low carbon technologies, Sustainable Energy of Authority of Ireland; Mr. Fintan Slye, chief executive officer, EirGrid, Mr. Rodney Doyle, director, market operations and general manager, EirGrid; Mr. Peter O'Shea, head of strategy and regulation, ESB, and Mr. John Lawlor, manager, corporate regulation and strategy, ESB, and Mr. Seán Murphy, manager, public affairs, ESB.

I propose the main witnesses will speak for five minutes each, followed by a questions and answers session where each member may ask a question not exceeding three minutes. Is that agreed? Agreed.

I invite Mr. Garrett Blaney, the Commission for Energy Regulation, to make his opening statement.

**Mr. Garrett Blaney:** The Commission for Energy Regulation, CER, welcomes the clean energy for all Europeans package. It is about setting Europe as a leader in clean energy. To date, Ireland has played a key part in successfully developing Europe's position on clean energy, particularly with renewables. For example, CER recently had a visit from the Australian Government which has had major challenges in implementing renewable energy generation and was looking for input from us. Similarly, we had a delegation from Japan, again looking for experience from Ireland. Ireland is really at the forefront. However, there are significant challenges ahead with the integration of renewables. The European Commission's winter package, the other name for the clean energy for all Europeans package, tries to address some of these challenges of the integration of renewables. In that context, fundamental changes will need to be made to energy systems. This package sets out some of the key parameters which need to be changed.

In Ireland, we are involved in a major translational project of changing the electricity market across the island, the integrated single electricity market, ISEM, project. We have an all-island committee, the single electricity committee, of which Ms Aoife MacEvilly and I are both members. We are in the process of changing the market in a way that will align it with the rest of continental Europe. We believe this change is going to help converge the design of our market with the rest of Europe. It will also help make our market closer to that in Great Britain, which will be an interesting issue. It will improve the efficiency of trading energy, improve the integration of renewables and, ultimately, help consumers develop better outcomes from their point of view.

The winter package is massive, comprising 1,000 pages and covering all aspects of energy regulation currently in place. While we broadly support it, we need to have some caution. There are elements of the package which have a risk of overreach from the European Commission, particularly a one-size fits all approach. For example, it talks about network tariffs being set centrally at a European level. I sit on the board of European regulators and we are pushing back at some elements of this, saying we need to be cautious and ensure a system suitable for the various member states, including Ireland. We have a different market here with different types of technology compared to the rest of Europe. It is important we ensure this ultimately works for consumers on this island, as well as working for consumers across the rest of Europe.

**Ms Aoife MacEvilly:** We see the clean energy package having a welcome focus on energy

consumers at its heart and driving this transition to a clean energy market. There are many aspects of the package which deliver specific rights and protections for consumers. Some of those would be already familiar to Irish consumers such as competitive markets, opportunities to shop around, value and choice from suppliers, deregulated tariffs, as well as the availability of price comparison tools, which are accredited and certified so consumers can have faith and confidence in those. These are elements of our market which are taken for granted by Irish consumers. A key element of the package is ensuring those benefits are delivered for all energy consumers across Europe.

There are also aspects of the package which are completely transformational for energy consumers such as rights of consumers to smart meters, to better information, to better opportunities to participate in the market, as well as rights to have dynamic tariffs so they can be a part of the market. As well as driving the transition, they can participate and be part of the demand-side response. For example, when there is much wind on the system, they can generate their own electricity and sell it to the grid at times when they are not using it. This is transformational change for Ireland and Europe, which we welcome.

Much of the work we have been engaging in, along with the industry in Ireland, particularly around the delivery of the national smart metering program, will pave the way for this transformation to be delivered in Ireland. We broadly welcome those aspects of the package which focus on delivering those benefits to consumers throughout Europe.

We see no immediate impact from Brexit on the Irish energy market. Like all sectors, however, there are potential implications depending on the outcome of the negotiation process. Within that, we strongly welcome the commitment of the Governments in Ireland and in the UK to the retention and importance of the all-island single electricity market. As Brexit interacts with this clean energy package, there are some aspects it will not impact, such as the consumer protection measures I referred to earlier. However, there are elements to do with security of supply and regional security which will have to be carefully considered in light of the outcome of the Brexit negotiations.

**Chairman:** I invite Mr. Jim Gannon, Sustainable Energy of Authority of Ireland, to make his opening statement.

**Mr. Jim Gannon:** There are four key themes for us in the clean energy package. It puts communities and consumers at the centre of the market and in a more active position. Ms Aoife MacEvilly referred to several points about more competitive markets, greater access to clearer information around switching, as well as people generating and selling their own electricity and that being facilitated at a more material scale. There is convergence in technology around this as well. We are entering a period in which we will see the consumer have access to smart meters. Electric vehicles and photovoltaics are becoming more cost effective. A combination of these things means that the consumer will have the technical ability and perhaps the price ability to involve him or herself in this type of a market change. It is quite important that we prepare the consumer for that.

Analogous to large infrastructure, there is a challenge in that we are asking consumers to interact with this sort of technology. They need to be given the confidence that they can trust it and trust the market that will help them get the value out of it. We need to educate and prepare them for that.

**Chairman:** Excuse me, I think someone has a phone on. I ask that it be switched to flight

mode if possible.

**Deputy Timmy Dooley:** That microphone is live so if the witness has anything that is-----

**Mr. Jim Gannon:** I definitely have it on flight mode.

**Chairman:** Have you?

**Mr. Jim Gannon:** It is my first appearance.

**Chairman:** Somebody may have it on silent as opposed to flight mode or having it switched off. It is for the reporting of the meeting. I apologise for that. I invite Mr. Gannon to proceed.

**Mr. Jim Gannon:** We have a couple of programmes that are trying to address that. There is a sustainable energy community network. There are now 60 to 70 members in that from local communities. We are effectively trying to provide consumers with more awareness, inform them and empower them to engage in this, tell them about these technologies, give them the ability and the confidence effectively to buy into this and derive some value from it. We give them the ability to create their own roadmaps for their communities, and we give them mentors and support to engage with consultants and advice to do the same. The aim is to bring them towards our larger funding projects like the better energy communities scheme, under which 37 projects funded 383 community buildings and about 2,000 homes in combination at a parish level. It creates that awareness and joint effort. It is important to note that we need something material around renewable electricity specifically and, with the Department, we are helping to design a framework which would help communities invest and participate more materially in the types of projects we will see in the future of renewable electricity. We need to admit to ourselves that the communities are different and we need to be adaptable and responsive to them. One size may not fit all.

Good progress has been made towards 2020 under renewables but there is a lot left to do. We reached 9.1% at the end of 2015, but there is still a gap to reach 16%. It will be a challenge to us. We support the level of ambition outlined in the renewable energy directive at 27% across the EU. Again, it is not without challenges. With regard to how Ireland achieves its devolved ambition, it will have to be carefully thought out. We are a peripheral state at the edge of Europe with our own conditions around resources and our own grid. We will be at the centre of this. What we are trying to do is progress aspects such as the renewable heat incentive, which it is hoped will be completed by the end of this year and will begin to produce some impact on that sector. Separate from that, as we move into next year we are trying to support the Department as it designs an updated renewable electricity support scheme in whatever shape that may take.

Energy efficiency is where Ireland has led and that has been recognised across Europe in the past. We really have been at the forefront. We must not be complacent about that and really push on. There will be a binding target for 2030 in energy efficiency. I believe it is also important that it is recognised as the most cost-effective way of decarbonising. The unit of energy one does not spend is the cheapest. It also helps us with our renewable electricity targets because it is a percentage of what we use. If we reduce the overall pot of what we use, that percentage becomes easier to achieve with what we have on the ground. It hits a number of different targets in terms of achieving them and separately in terms of involving communities and businesses, because every business and home will have its own part to play.

We have put in place a couple of pieces of work this year. We have put in place greater capital schemes for the public sector across the Office of Public Works, OPW, and schools, and

we are interacting more effectively in terms of leveraging off the private sector and getting it to invest more money into what we are doing. We are also looking at different and more subtle market interventions. We are setting up a behavioural economics unit to try to look at how we can incentivise change without putting as much capital into it.

With regard to Brexit, it is not really in our purview. From our perspective, there are a lot of similar themes in the philosophy that underpins the clean energy package and in what underpinned the creation of the single electricity market. It is about providing best value to the consumer and making best use of the power on the system and of the shared and combined infrastructure. The indications from both Governments at this point is that it is on their agenda. I believe it must remain there. From our perspective, we speak to the consumer and the business all the time and the issue of energy is cross-cutting. The more efficient and effective we can make that, the better for all.

**Chairman:** I thank the witness. We now move on to our next witness from EirGrid, Mr. Fintan Slye, CEO.

**Mr. Fintan Slye:** I thank the Chairman and the committee members. I very much appreciate the opportunity to give some input today. If it is all right with the committee, I will ask my colleague, Mr. Rodney Doyle, who is much more expert in these matter than I am, to give some input to the committee.

**Mr. Rodney Doyle:** I thank the committee for the opportunity. The clean energy package is a very positive step forward. It is important to say that it is the next step along the journey of the integration of the European electricity market. For that alone, it is to be welcomed. There are some areas that are important to keep an eye on as we move forward with the new package. In and of itself, it is a set of proposals which will now be looked at over time and negotiated. There is the opportunity to look at the proposals and find areas in which we believe we could influence change. That is something that we have the power to do as time goes on. I might concentrate on some of those areas as I look at it.

We have had a very successful single electricity market operating on the island for about the past ten years, as has been mentioned. We are about to implement the next phase of that in the integrated single electricity market. It is more than just the single electricity market. We have had in effect an all-island approach to energy that has been hugely successful for the consumers on both sides of the Border, North and South. It has also gone a little bit unsung in terms of being very successful politically as something that is operated with little hassle on an all-island basis. It is something that we should not lose sight of as we move forward. With that in mind, as we look forward to either Brexit or the clean energy package, we must try to continue that all-island success into the integrated single electricity market.

We must move into that next step and look at the package. Ireland is a unique system. Everyone likes to see themselves as unique, but we are right on the periphery of Europe in many senses, and certainly electrically. From an electricity perspective, we have two interconnections to Britain as things stand. That gives us very important interconnection into Britain and all the way through to Europe, but a limited amount of it. Policies that look solely at central Europe and, either technically or from a market rules perspective, concentrate on central Europe are a bit one-sided from our perspective in terms of how they operate. In looking at the package, it sets out a number of requirements which would see more functions moved to central Europe.

This involves areas such as the role of European Network of Transmission System Opera-

tors for Electricity, ENTSOE, which is the European body for transmission system operators, TSOs, similar to ourselves across Europe. It also involves the Agency for the Co-operation of European Regulators, ACER, which is the European regulators' body - similar to the Council of European Energy Regulators, CEER - across the whole of Europe. It looks to strengthen the roles of ACER and set up new bodies known as regional operation centres. While these regional operation centres are good in terms of encouraging co-operation between system operators across Europe, it comes back to that point I am making about the fact that one size does not fit all when operating electricity systems or markets.

This is particularly true when we think about energy sovereignty and our own abilities. As an example, when the IDA looks to introduce foreign direct investment into the country and bring in some new firms, such as some of the big data centres the committee would have heard about recently, a number of our colleagues and ourselves meet the IDA. A big part of the conversation is looking at energy costs and how they are linked to clean energy. In Ireland, we have a great opportunity because we have very clean energy. We also have very reliable energy. Our system has been extremely reliable over time. A large part of that is that we have the capability to make decisions from our perspective in Ireland. Some of the decisions that are proposed to be put out to Europe would be core system security decisions that, from an energy sovereignty point of view, we believe should stay on this island. Again, there are a set of proposals in place currently, but over time it is important to look at those proposals and seek to influence an increase in co-operation across Europe. We do not want to lose some of those key pieces that mean we are able to give investors coming to Ireland the kind of guarantees they are looking for. We are competing against other European countries that are right in the middle of Europe and may have a wider portfolio of solutions available to them than we would, being on the periphery of Europe. It is important for us to look at that. Then there is the matter of the way in which policies are developed. Central European policies that suit the way in which a market is run in the middle of Europe, for similar reasons, will not necessarily work for us. The influence we have had to date through co-operation with the regulators, the industry in Ireland and in particular the Department of Communications, Climate Action and Environment has been very important because we have been able to take direct control of the drafting of some of the codes that govern how the new market will operate. This role and the way in which we have worked together will be important into the future. Some of the proposals that have been put forward would see more functions moved centrally into Europe, taking away the national regulators, national transmission system operators, TSOs, and national policymakers' influence in the field. Again, we must be careful to get the right mix. To date, we have quite a good balance between co-operation and obligation. I do not want to see this slip the other way and find there are too many obligations with which Ireland, with its particular characteristics, finds it difficult to comply. As mentioned already, the package is very wide-ranging, but we should keep a close eye on the way in which these new institutions will be set in Europe and the responsibilities they will be given as we move forward.

Regarding Brexit, I think it has been mentioned that we believe the new integrated single electricity market, I-SEM, is very important. It is a link between us and Britain and on into Europe. Either way, it is a bilateral market between us and Britain and should be implemented under all circumstances. All our conversations to date with our colleagues in Britain indicate that there is no reason it should not go ahead. Huge benefits are to be gained from increasing the trade between us and Britain for energy customers. With this in mind, we are considering the potential impacts of Britain's exit. These tend to be edge effects in respect of changes to legislation, rules, etc. Anything that would see energy tariffs introduced would be a major negative from our perspective and something we would want to see resisted strongly because

it would inhibit the good functioning of the way in which the two markets trade. Further, if Britain is no longer part of the energy market in Europe, we no longer have a direct link into the European energy market in the same way. Therefore, building a direct link to the energy market in Europe is a positive. We in EirGrid have been investigating with our colleagues in Réseau de Transport d'Électricité, RTE, in France, the build-out of the Celtic interconnector, which would link directly from Ireland into the French electricity market. From a Brexit perspective and a wider European energy market perspective, this would be positive. It has been identified as a project of common interest, PCI, in Europe, and it is very good to get that standing.

**Chairman:** I now call our final witness, Mr. Peter O'Shea, head of strategy and regulation at ESB.

**Mr. Peter O'Shea:** I thank the Chairman and the committee for the opportunity to speak here.

ESB is supportive of the proposed clean energy package which the EU published in November but, like some of the previous speakers, we urge some degree of caution, particularly over the one-size-fits-all perspective of it. We see the package as an important part of how the EU and Ireland will meet the obligations which we have all signed up to in the COP21 accord, and it will seek to give effect to the EU's 2030 targets.

Rightly, the EU sees electricity as a crucial component of the overall energy system, particularly in addressing climate change. In Ireland, we have built a modern, reliable electricity system with ample generation capacity supplying power to customers over modern networks and with a high degree of smart technologies. All this has been achieved while keeping electricity prices at around the eurozone average.

However, one of the fundamental changes over the past decade and a half has been the growth of renewable energy, renewable electricity in particular in Ireland. Last year, we had the second-highest penetration of wind generation in the European Union, behind Denmark, and renewable connections are still ramping up to push us towards our target of delivering 40% of electricity from renewable sources by 2020. In my mind, this is an extraordinary achievement for a small island and is recognised as such by the European Commission. More important, as we face into the clean energy package, it provides Ireland with a strong platform to address decarbonisation into the future.

While electricity is a crucial part of the energy system and is progressively moving towards low carbon, it is important to know that electricity is responsible for only 20% of the total energy used in Ireland and only 20% of total greenhouse gas emissions in Ireland. It is greenhouse gas emissions which cause climate change and it is the reduction of these gases which is the objective of the climate and energy framework.

In Ireland, in 2015, we emitted 60 million tonnes of greenhouse gas in total, and of this, approximately 12 million tonnes was from electricity generation. Three other sectors make up the rest: agriculture at approximately a third; heat, which is similar to electricity generation, accounting for approximately a fifth of total emissions; and transport, which is responsible for just under a quarter of total emissions.

Electricity generation emissions are falling. In absolute terms, they have fallen from 15 million tonnes to 12 million tonnes between 2005 and 2015, while the carbon intensity of electricity has almost halved since 1990. By contrast, the trend in transport has been upwards, and the



take-up of renewable energy in heat has been low, leaving it vulnerable to emissions increases as the population grows.

It is the total of these emissions across electricity, heat and transport which Ireland needs to reduce. Our national policy position is to try to reduce them by 80% between now and 2050. To put this into numbers, this means moving from 38 million tonnes from the energy system at present down to less than 6 million tonnes by 2050. This is a huge challenge for Ireland. In ESB, we have considered a number of studies to ask what sort of roadmap would give us the prospect of meeting this challenge and we have come up with a number of different aspects to it. First and foremost is the continued decarbonisation of electricity as renewable energy grows towards and beyond 50% by the middle of the next decade and further new low-carbon generation completing the journey towards 2030 and then onto 2050. Secondly, we need to decarbonise transport with electrification of the light vehicle fleet and the use of compressed natural gas and bio-methane in the HGV fleet. We also need to decarbonise the heating and cooling of our buildings, initially containing the growth of emissions in new houses through new standards for building regulations, but also reducing the existing stock of high-emission houses through a national renovation programme. Finally, we need to decarbonise our industry process heat with a progressive move to renewable heat or carbon dioxide type capture solutions.

This roadmap allows us to ask the questions about the clean energy package. These are the specific questions we ask ourselves: Does the package encourage and enable decarbonisation of Ireland's electricity system between now and 2050? Does the package facilitate the decarbonisation of transport through electrification or other means? Does it facilitate the decarbonisation of heat, again through electrification or other means? Do the individual measures in the package provide sufficient support to Ireland's unique circumstances? In particular, across the EU we have among the largest share of emissions in the non-traded sector which, when coupled with the large scale of our agriculture emissions, creates an imperative for early decarbonisation of heat and transport. At an overview level, I suggest that the package is strong in terms of measures to decarbonise electricity and less strong in terms of measures to decarbonise heat and transport. In this respect, it continues the present trend. To be clear, this is not to say that electricity does not need to be decarbonised; it most certainly does. However, we need to have a much greater focus on the heat and transport sectors if we are to crack the climate challenge.

I will now consider and comment on some of the details of the clean energy package, starting with the electricity sector. Does the package help the electricity sector to decarbonise? In broad terms, it does when viewed alongside the effort sharing regulation and reform proposals to the European Union's ETS scheme. Taken together, these measures provide a strong legislative and political framework for Europe. There are a number of areas which we will need to consider further. For example, some of the proposals on biomass and capacity remuneration may inadvertently limit member-state-specific solutions. I mention again the one-size-fits-all perspective in this respect. In broad terms, it is important that member state flexibility is maintained, and this is why we in ESB support both RES and energy efficiency targets being at an EU level rather than a member state level.

Moving on to consider the heat and transport sectors, again, does the package get the balance right? I suggest on a preliminary basis that it does not quite get it right. The package is still very electricity-centric: the vast majority of the measures proposed in the package are centred around the electricity system, when it is clear that action is required in other sectors. That is not to say there are not positives in this. The energy performance of buildings directive contains measures to encourage renewable heat in buildings and measures that are positive

for low-carbon transport. However, one concern with the energy performance directive is that district heating is excluded as a means of meeting the renewable requirement. District heating involves piping heat from a central source to the point of use. The central source is subject to the emissions trading scheme and is therefore on a clear decarbonisation trajectory. District heating should not be disadvantaged through this directive, and we suggest that this be changed. The energy efficiency directive retains the concept of primary energy factor in energy efficiency gain calculations. This is a technical point but an important one as it works against using low-carbon electricity to decarbonise heat. These are just some of the issues we will bring to the attention of the Department in the consultation process.

Within the ESB we have adopted a watching brief on Brexit. We are members of Energy UK and of the Electricity Association of Ireland and through that we have influence at EU-RELECTRIC. The broad perspective we are getting from our peers is to try to keep the existing arrangements as they are. A common point between us, the Europeans and the UK is that we are all net importers of energy. We hope that some pragmatic decisions are taken in that respect. The biggest problem we face is that over time, we will see greater divergence on policy between what is happening in Europe and in the UK. It is difficult to anticipate what will be the implications of that. One interesting example is that a couple of years ago, the UK Government proposed a carbon price floor for electricity generation across the UK. Had that been implemented, it would have had an impact on the single electricity market in Ireland. Following discussions with different parties the UK Government decided not to implement that legislation in Northern Ireland. Similar pragmatic thinking will be required to maintain the common direction of the single electricity market and our energy business overall. I thank the committee for its time and I am happy to answer questions.

**Chairman:** I thank Mr. O'Shea and all the witnesses.

How does the Commission for Energy Regulation, CER, believe the withdrawal of the UK from the EU would impact on the integrated single electricity market? Mr. Blaney mentioned it in his presentation but he does not seem overly concerned about it. Could he expand on that?

I am particularly interested in the concept of energy-active citizens. Can Mr. Gannon of the SEAI explain whether the objective is to give the citizen the possibility of choosing and what are the challenges to progressing and developing this idea?

Could EirGrid provide more information on the status of the Celtic interconnector, its timelines and the estimated cost?

**Mr. Garrett Blaney:** The integrated single electricity market, I-SEM, project is driven in part by European compliance. This is the third package. The key driver is to ensure that the system on this island complies with all the various approaches taken across the rest of Europe. We have to do this and it will happen before Brexit is fully implemented.

We take comfort from the fact that there is a commitment the UK Government's White Paper on Brexit to say that it sees I-SEM and its continuation as important and that there have been similar indications from the Irish Government. We do not see an alternative to the I-SEM project. It is critical to deliver it for the consumers on the island. We need to be cautious and make sure we have done everything possible to ensure its continuation. We are not passive. We will actively seek to influence anything we see that may turn out as adverse to I-SEM. There are no indications of anything like that at present.

**Mr. Jim Gannon:** The three core actions for us are to make sure that communities and citizens are aware of what is coming, to inform them to give them the power to interact with that and empower them by creating the type of systems and mechanisms I spoke of earlier.

We have a White Paper that places the energy citizen at the core of what we are doing. There is a principle established that we must embody in what we do year on year. It is important that we bring them early into the policy dialogue in order that their point of interaction is not when they first interact with infrastructure or smaller scale technology. The Department has opened up a dialogue on the clean energy package quite early. There might be only a small level of interaction at the start but if we keep people informed and abreast of developments, it embeds not necessarily acceptance but awareness. I have mentioned a couple of the programmes we have under way to inform people. All of our touch points, including performing 90,000 building energy ratings per year and interacting individually with 22,000 homeowners who upgraded their homes last year through our programmes, should be a method by which we can engage them in this sort of debate and inform them of what might come next. Specific projects are important too where we can say here is some best practice but along with that, here are the seven lessons learned, here is where it went wrong. For example, we need to move from a shallow retrofit of our housing stock to a deeper retrofit, analogous to what Mr. O'Shea described. As we do that we need to bring people along, we deal with houses, treating the different types of technology they could use and their costs. We need to make sure people are aware from the outset and that we use transparent analyses to bring them along. It is a question of transparency and making people part of the dialogue.

**Mr. Fintan Slye:** The Celtic interconnector is a joint project with Réseau de Transport d'Électricité, RTE, the French transmission system operator. We have been working on it together for approximately three years. We have completed the initial pre-feasibility phase in the middle of last year which showed this is viable. It estimated the cost at approximately €1 billion, which would be split between the two countries and companies. We are now in the preliminary design and pre-consultation phase.

We have a memorandum of understanding in place with the French and have received European funding through the Connecting Europe facility for the phase we are in. That phase will run for probably another 12 to 18 months. It involves all the very detailed economic assessment and the finalisation of the cost assessment to work out the benefits at European level but also the benefits to Irish and French consumers. We will then consider the next phases and whether to proceed with it and whether it qualifies for any European funding. If the project continues to pass through the various stage gates and proves to be viable we would seek commissioning of the interconnector in or around 2025. That is a ball park timeline.

**Deputy Timmy Dooley:** I thank the witnesses for their submissions, which are very helpful to our deliberations. They all referred to the energy consumer or energy citizen as being at the heart of the issue. The wholesale price of electricity has dropped by 30% yet at retail level it is down only 3%. Could the regulator address that? Is there anything in this package that will strengthen the regulator's hand, that will allow the CER to focus more on the consumer and if so when is that likely to be ready for transposition?

I hear a lot of push-back from the citizen and from industry, particularly small to medium enterprises, SMEs, which are looking aghast at the marketplace and seeing that the reduction in the wholesale price is not reflected in their bills. We hear about a broader network, the benefits of the single market and the opening up of the market place. Mr. Slye has indicated that it is feasible and financially viable to make the interconnector. Large energy consumers that I talk to

are concerned that they will pay for it. Will the interconnector only benefit the rest of Europe? Some who are against wind turbines are concerned that we will be seen as a country that will generate a lot of clean electricity for the benefit of others. I spoke to a Slovenian colleague yesterday who, having looked at this package, thought it would put an enormous burden on Slovenia because 40% of its landmass is covered by the Natura 2000 classification. Slovenia has only a handful of wind turbines. With its topography and various other constraints, it will not be able to reach the same level of renewables. It has issues with hydroelectric power because the area concerned lies within a Natura region. If there it is to be a 27% target of renewable energy consumption across Europe, will we have to carry a much greater burden to assist in reaching that average. If we do so, is that what will make the Celtic interconnector viable?

In terms of our 2020 targets and given that he represents an entity that is not directly involved, does Mr. Gannon believe we will reach those targets? On the heat side, we obviously have we have real problems. In terms of deeper retrofit programmes, what does he consider needs to be advanced? They will have to be front-loaded with money. Has he identified what quantum of money would be involved in terms of the State's support for a deep retrofit programme that might meet the reduction in heat loss required to us help meet our targets?

I do not have any question for the representatives of the ESB other than that relating to the wholesale and retail prices for electricity. They might provide information on that matter and Ms MacEvilly might also weigh in respect of it.

**Chairman:** I ask the witnesses to bank those questions. I will call Deputy Stanley next and then I will bring in the witnesses to reply.

**Deputy Brian Stanley:** I thank our guests for attending and for providing us with this information. I have a number of questions. The first of which is for the CER. While energy prices, in terms of gas and oil, have dropped and we have more renewable energy on stream, customers are not benefiting from the reduction in energy prices. My electricity bill continues to increase every year despite the fact that we are using the same amount of electricity. My neighbours would say the same thing. Household energy bills are increasing. The wholesale energy price has dropped significantly - by in the region of 30% - but the customer is not feeling the benefit of that reduction. What is the CER doing about that?

On the issue of the programme and the reference to a concern about over-reach, are different regulatory bodies in the 28 member states co-operating in terms of trying to do something about that? There are benefits to being in the programme but we do not want the big foot of Europe to come down too heavy on us. What level of co-operation is there around that?

Having met the representatives of the ESB and having different contacts in it, while there is much talk about buying into renewables, the company would still seem to be overdependent - in the future it will be overdependent - on a small number of big generation sources. There will be thousands of electricity generation sources in the future. Unless I am missing something, I do not believe the ESB is moving quickly enough towards bringing those sources on stream and tapping into more and smaller sources of renewable energy. The representatives of the ESB might indicate where the company stands in terms of smart meters.

Regarding a green bond scheme - I know the ESB operates a scheme of this type - there is a major problem in rolling it out. A deep retrofit programme is being discussed and we know it is needed. We have retrofitted a great number of houses that were built in the past 30 or 40 years, but many houses were built 60 or 100 years ago and we all know they are more difficult

to retrofit and carry out energy upgrades on, even though there are new technologies and new building materials available. I refer, for example, to insulated plaster slabs, which are God's gift. Such schemes are not being rolled out. We need to have a big idea in that respect and to have a big push to promote insulation. There is a scheme in place providing for the external house insulation, but the work involved is difficult, expensive and I am not convinced about the wisdom of putting sponge-like material on the outside of buildings, particularly in view of the fact that we have a wet climate. I am not sure if we are seriously focused on promoting internal insulation to keep houses warm. An imaginative scheme in terms of a green bond initiative, initiated by the SEAI and the ESB, is needed. In other words, if a household's electricity bill is €150 every two months and if the owners have improved their insulation, their electricity bill would fall to €100 every two months and the €50 they saved could be paid off the sum required to do that work. Such schemes operates in other jurisdictions. I would like the representatives from the ESB to comment on that matter. The representatives from the CER or the SEAI can also comment on it if they wish.

My next question is for EirGrid. The French are fairly keen on having the Celtic interconnector. It was stated that it would cost approximately €1 billion. Will that cost be split evenly, namely, €500 million paid by our little State and €500 million by the much larger state of France? Do we have the option of securing EU funding for the project, given that we will be very peripheral, particularly when the Brits perform a kamikaze manoeuvre and move away from the EU? Can we make a case for EU funding for that project?

The issue of tariffs in the context of Brexit is a concern. I refer to tariffs applying to electricity sources coming into the country but also applying to electricity sources in terms of trying to maintain the single market for electricity on the island, which has been operating well for the past ten years. Should we be seeking special status for the North within the European Union? We know that the North will be dragged out of the Union against its will in the aftermath of Brexit. Should we be pursuing the goal of the Six Counties retaining special status within the European Union?

**Chairman:** The representatives of the CER might begin by responding to those questions from Deputies Dooley and Stanley.

**Mr. Garrett Blaney:** I will begin by responding to the question on Brexit and the issue of tariffs. We have not seen any indication of tariffs and it is certainly clear from the relevant White Paper that the UK does not see any tariffs applying, particularly in the energy sector. We do not believe that tariffs should be applied. From our point of view, that would be an adverse development, whether it be gas or electricity, and we would strongly argue for a tariff-free approach. If tariffs were to apply to either or both, they would have a significant impact on consumers. We will need to keep a close eye on that as it develops.

On Deputy Stanley's question on overreach and what are we doing at a European level, a European board of regulators is referred to in this package. It already exists and I sit on that board. Deputy Dooley mentioned Slovenia and the board is based there, so I am a regular visitor to Slovenia to attend those meetings. I also chair one of the working groups in that and we are developing a set of white papers as a result of this package to influence MEPs, the Commission or anyone else who will listen to us at European level. We are very actively engaged in that, both on our own behalf and as part of the collective body of European regulators. We are arguing for what we think is good for both Ireland and for regulators generally at a European level. I will hand over to my colleague to cover the consumer end. Ms MacEvilly is the lead commissioner on consumer issues.

**Ms Aoife MacEvilly:** As there was a common theme in the questions on retail prices from Deputies Stanley and Dooley, I will take those together. Members may be aware that the CER has recently published a major review of the operation of retail markets in Ireland. We specifically looked at whether competition is delivering for consumers. The key findings were that competition is delivering benefits, particularly for active energy consumers, and we can see that. There are two areas where we want to do more work. First, because many consumers are not as active, they are not seeing the same level of benefits. The other is highly pertinent to the question the Deputy asked. We have seen retail prices fall in recent years, driven largely by the falling wholesale price to which both Deputies referred. However, there are other elements of cost, so it is not a direct one-to-one relationship between wholesale and retail prices. We have seen network costs increasing. We regulate network costs, so we understand that. We are investing more to deliver more benefits and to decarbonise our energy system. We have also seen what we call the supply cost element increasing. That is an area on which we have less visibility. We have said in our review that we want to understand that better and to ensure we are seeing the full value passed on to consumers. That is an area we are investigating further. We are seeking input from the energy companies to understand what that dynamic is showing us. Are there increasing costs for energy suppliers and are there ways in which we can help tackle those costs? That is an area to which we are giving full focus at the moment. Our review has been a critical moment for the evolution of policy in this area. Deputy Stanley's bill should have been falling if he has been using the same amount of electricity. All suppliers have reduced their unit charges by some extent, so we have seen those benefits pass through. Our question is whether the full extent is being passed through. That is what we want to understand better.

In terms of what more might be done, particularly in terms of this passage, a real emphasis is on encouraging customers to be more active. That may be shopping around and finding what is the best value or participating in the market through enabling technologies like smart meters or potentially other smart home energy efficiency opportunities or the opportunity to export. We believe potentially game-changing opportunities for customers are coming down the tracks. If a customer is really keen to see the full pass-through of what is happening with the wholesale price, they may be interested in a dynamic tariff. Dynamic tariffs are on the table.

Broadly, the emphasis of the clean energy package is very much in line with the areas that we are looking at. It is trying to ensure that we have efficient pricing, market-based pricing and fully competitive markets and to ensure that is passed on to consumers. It also is about ensuring that consumers are really well informed and active, are shopping around and have opportunities to gain the best value. We introduced a number of changes late last year about how we can provide better information to consumers and make it simpler for them to do that, even in the existing market. There is a lot more that we can do to help consumers there.

**Mr. Fintan Slye:** There was a common thread between Deputies Dooley and Stanley around the Celtic interconnector. It will only be built if it makes sense for Irish consumers. It also needs to make sense from a European and a French consumer perspective. In terms of money invested in it on the Irish side, it needs to clearly demonstrate that that is of value and delivers value for Irish consumers. There is a lot of talk about the need to bring prices down here. One of the effects of a Celtic interconnector would be that we would have access to continental European power prices, which are lower than Irish electricity prices. The goal of the interconnector is not to drive policy in terms of exporting renewables, it is to make sure that we make the best use of the resources that we have and to allow us to import power from Europe more cheaply.

In terms of the allocation of costs, for projects like this there is a regulatory process in Europe called cross-border cost allocation, CBCA. The CER, with its counterparts in France, looks at where the benefits for the project fall, be that in France or elsewhere in Europe. If the benefits predominantly accrue to one country, should the costs predominantly fall on that country? We believe that the project should receive European funding. To date, it has received funding for the previous phase and the current phase. These phases are relatively small money in comparison to the overall capital costs of future phases. We will make sure that whatever grants or funding is available in a European context will be availed of. The Connecting Europe facility has funded 50% of the cost of the project to date, with the remainder split on a 50:50 basis between ourselves and the French electricity transmission network, Réseau de Transport d'Électricité, RTE. The overriding message is that it will only be delivered if it delivers benefits for Irish consumers. That is an absolute.

**Mr. Peter O'Shea:** In regard to Deputy Dooley's question on pricing and just to follow up on what the commissioner said, first, it is important to recognise that wholesale prices are approximately half of the retail price. Every movement in wholesale prices will not be seen in full on retail prices. The rest is network costs, supply costs, and also the public service obligation, PSO, levy. The way the PSO works is that when wholesale prices are high, it is low. When wholesale prices are low, it is high. The other comment to make on that is that suppliers buy their fuel stock forward. They hedge their fuel prices with gas or coal or whatever. As a result, changes in wholesale prices are not immediately seen because the actual cost the supplier is seeing is the price they have paid under contract to buy forward.

I can assure Deputy Stanley we are building small-scale generation in both wind and solar. We have entered a joint venture with Kingspan to build out solar on rooftop. The future is going to be a lot of small generation but it is not the only part of the future. There will be a role for larger-scale generation as well, in regulating the grid and making sure that overall balance is maintained.

In terms of smart metering, current timescales indicate the cost-benefit analysis is due to complete in 2018, with installation starting at the end of 2021. It is a project on which to drive forward with the regulator, ESB Networks and a number of other players.

I do not have anything to add to the commentary on the green bond that we had a couple of months ago. It is primarily an area for Government policy to decide how the Government wants to support the retrofit of homes. It is expensive. The cost is €20,000 to €30,000 per home and we must operate within that realm.

**Mr. Jim Gannon:** In response to the question from Deputy Dooley, targets remain extremely challenging. We do the forecasting exercise every year as to whether we will meet them. As we get closer to 2020, they become more challenging and it becomes more challenging to address that gap. I am given hope by what is coming down the line, in particular the fact that there will be a renewable heat incentive that will hopefully come into being towards the end of this year, in the fourth quarter. That will have an impact on heat. There are indications that we may see something on renewables in transport. Efficiency is at the core. If we can achieve greater efficiency between now and 2020, it reduces our ask in terms of renewable electricity and renewable gas to support that. It is one of the most effective ways of decarbonising. Energy efficiency helps to solve some of those issue and we should push harder for it. It is extremely challenging and becoming more difficult but certainly we are working hard towards it.

**Deputy Timmy Dooley:** Is there any visibility from Mr. Gannon's perspective on the po-

tential cost if we breach? I am sure he will have done some modelling at this stage to give him some estimate as to where we may under or overshoot. Has SEAI any indication as to the potential penalties?

**Mr. Jim Gannon:** The cost to the Exchequer is not in our purview and it is not something we would calculate. We provide the underpinning data and the underpinning efforts around forecasting, but it is not on our table.

**Chairman:** I thank Mr. Gannon. Do any other members want to come in?

**Senator Michael McDowell:** I have three questions. There has been a lot of enthusiastic comment here on the directive improving things. From Ireland's point of view, will someone explain to me what this directive will achieve that we could not achieve for ourselves? Will it give new powers to our regulator? Could we not get those powers by ourselves? I note that it is stated there are no implications for subsidiarity. If these are good ideas then is there some constitutional reason we are not doing them ourselves?

I want to have some clarity about modelling. What economic modelling are we putting in place for all of this? Are there any extrapolations of Irish growth such as population growth and are they being built into our modelling? Are we working towards Ireland growing constantly at 3% and 4% over the next ten or 20 years and what assumptions are we making? A subset of this question is that we are talking about a major transformation - we hope - from fossil fuelled vehicles to electric vehicles, at least for small and medium-sized vehicles. Is the increased demand for electricity built into the model? What are the implications of large-scale use of Ireland for data centres? It is my understanding that they can be very significant consumers of electricity. Maybe someone will explain that to me.

My last query is about the Celtic interconnector and is directed at Mr. Slye or Mr. Doyle. It was said that the interconnector will not be built if there is no positive benefit for Irish consumers. I presume cheaper electricity would be available or a more predictable electricity supply. Is it the case that Ireland will not proceed with it unless prospective electricity prices in France appear to be significantly lower and the French are probably only interested in getting involved if there is going to be a good profit for them or a return on their investment? I have looked at the figures and it appears that we have nearly 3,000 MW of wind power in Ireland at the moment and the major ESB and other electricity plants have capacity for another 2,500 MW. The Celtic interconnector is to bring a 700 MW connection, which is less than the Moneypoint power station is currently supplying. I would like someone to explain to me what this €1 billion interconnector will bring that another Moneypoint would not? Is French nuclear power the advantage of it?

**Chairman:** I thank Senator McDowell. I will go to Deputy Ryan and then I will come back to the witnesses, if they could just bank those questions.

**Deputy Eamon Ryan:** Apologies for being late as I was at a national planning forum event that ran late. I have read the presentations and I have a few short questions. When I read the ESB approach, and I would be interested to hear anyone else's view on it, effectively we are talking about 100% decarbonisation of our energy system by 2050. Decarbonisation is what I read into it. There are transport and agriculture elements, but that is our part of meeting the climate action goals. Am I right on that?

The witnesses have said specifically in their written presentations that some of the proposals



around biomass and capacity remuneration around the clean energy package may inadvertently limit member states' specific solutions. I would be interested in hearing the details of what the witnesses are looking for in that regard.

I would appreciate it if the witnesses could outline their capital spend this year, the main items of expenditure and whether they applied for any funding from the Connecting Europe Facility, the European Investment Bank funding or the Juncker plan investment fund? We talk about these big retrofit programmes and so on but have the witnesses any specific projects where they are looking for funding from any of those European funding sources?

I was very interested that the SEAI said we may be looking at some solutions in renewable transport. Will the authority indicate what we may be looking at? Mr. Gannon mentioned it and perhaps he could expand on what we could be doing in renewable energy and transport.

I have two final questions, one of which is for the CER. I seem to recall that we started doing the cost-benefit analysis on the smart metering programme in 2010. Is the CER satisfied that it has taken us eight years to do a cost-benefit analysis? Is there a risk that Ireland is falling behind other countries in this consumer focused energy system, if it has taken Ireland eight years to just do a cost-benefit analysis, particularly given the ESB has done very detailed consumer surveys? We have oodles of data, more than anywhere else. Is the CER happy that it has taken eight years to do a cost-benefit analysis?

I have some questions also for EirGrid. If we do not proceed with the North-South interconnector, is it feasible or possible that the Northern energy authorities may instead look for a grid interconnection across to Scotland or the UK to provide the energy security they may need? Has this ever been raised as a risk in the mix?

Last but not least, my vision is that if we had 100% decarbonisation of the energy system, the more interconnection we would have, the cheaper it would be. It does not have to be curtailed. It can be balanced and it is fundamentally the big picture. We are going to go to with the north-western European and probably a wider energy balancing system with interconnection in all sorts of different locations. Why is EirGrid not looking for other interconnectors with the UK in this regard? Is there a risk we will end up with private interconnectors and we would run into the same problems we had with the Midlands project in not getting the benefits of the balancing capability where a national transmission system operator can use it, as it has a different economic assessment because it has the wider societal and other balancing benefits? Are we at risk of seeing private interconnection replacing the State investment in further interconnection with the UK? I would be interested to know this, given that in the Connecting Europe facility, as I recall, about four or five interconnectors would have been funded between the UK and Ireland in the most ambitious ten-year plan. Why have we not looked at the possibility of any further interconnection with the UK?

**Mr. Jim Gannon:** I will start with the points raised by Deputies Dooley and Stanley on deeper retrofit. There are things we must look at very carefully. This year, as opposed to prior years, where we would have looked at the number of retrofits in the tens this year, we are going to look at hundreds depending on how many we can get. It is important we look at the different housing types in Ireland, the different archetypes, and the different technical solutions because there could be a number of ways of reaching a particular level of performance. We would also look at the costs of that and how the consumer would finance it, whether a green bond or a grant-type programme. We must ask what is the most cost-effective way of incentivising that and in getting consumers to a point where they are willing to invest in their homes for the price

of a reasonably sized car. That is not insignificant in itself. The final piece is to test the supply chain. Do we have the designers, the technologies to put into the homes, the trained men and the tools to do that, given that we have fewer than ten apprentice plasterers in the country at the moment? We are significantly increasing our testing of that market and it will go on during the year. It will be completed very transparently also.

With regard to renewable and transport, unfortunately, what I referred to is quite anodyne. It was looking at perhaps increasing the substitution level towards 2020. It is likely that we will start to address the use of electric vehicles in a more material way this year within SEAI. While not necessarily redesigning the incentive, we have already started to look at getting greater impact from what we are doing with electric vehicles, including the electric vehicle grant scheme fleet. It is pertinent to hand over to my colleague, Dr. Eimear Cotter, who leads the forecasting exercise, including the modelling as referred to by Senator McDowell.

**Dr. Eimear Cotter:** I thank the committee for the questions. With regard to modelling, we run a major exercise every year to look at what our energy demand is going to be into the future. At the moment this is out to 2035. We work with a number of key partners to enable us to do that, for example the ESRI. We take on board its macroeconomic forecasts for the economy as a whole up to 2035 and what this data mean for individual sectors, such as the energy demand in homes, businesses, transport. We also work with other partners, including EirGrid, and look at the demand from data centres. We look at the game changers, which one cannot necessarily anticipate in a modelling exercise, and we have done that already in this round of forecasting that has not yet been published, but is being worked on. We work with the Departments, looking at Government policy and what we think will happen in terms of EVs and incorporating that into the modelling as well. It is a collaborative exercise that takes on board the input from all the players so that we can produce the best possible outlook for energy demand up to 2035. We will move further out as time goes on.

Our modelling enables us to look at where we are relative to the targets and the potential compliance costs were we to fall short of targets. In response to the question on compliance costs, we have shown that were we to miss our 16% renewable target, the potential compliance cost is between €65 million to €130 million for each percentage point below target. These are statistical transfers that mean we will be able to purchase that compliance from other member states that are over-achieving on their targets. That very wide range is there because that market does not exist at present and nobody knows what that compliance will cost. When it comes into existence in the market in the early 2020s, we will be able to see the trading and whether we need to avail of it.

**Senator Michael McDowell:** Chairman, just before the next responder, I hope this is not going to be another instance, and I am not suggesting that it will necessarily be, that in three weeks time we will get data that radically differ from what we are hearing now. This committee has found things coming out three weeks after a hearing which move the goalposts very substantially. Could Dr. Cotter confirm that this shortly to be published data are all consistent with what we are hearing today?

**Chairman:** I might bring Dr. Cotter in again.

**Deputy Timmy Dooley:** That is in all our interest, because when it happened before Senator McDowell got very irate. I think it featured prominently for about a week.

**Senator Michael McDowell:** It was not you, Deputy.

**Chairman:** Thank you Deputies. I will allow Dr. Cotter to respond.

**Dr. Eimear Cotter:** That touches on my final point. Every forecasting exercise by its nature will be wrong. What we do to get around that is to produce scenarios and look at different outlooks for the future so that we can make as informed a decision as we can. One cannot pin all hopes on one set of numbers that are looking so far out into the future.

**Chairman:** I invite the regulator to speak.

**Mr. Garrett Blaney:** I will try to answer this question on the legislation and the reason that we are not already doing what is asked for in the European legislation. I think to some extent we already are. I think there are many different areas of the package, where we think we are probably ahead of quite a few member states. I think, though there is a general value in us being part of a bigger market to the extent that we can tap into the much larger market across Europe, be it equipment or mechanisms that we can comply with, then there is an advantage for our country. We need to be careful about one-size-fits-all - and this goes back to the risk of overreach - in that it would impose inefficient solutions on us because these solutions happen to work for Germany or France. We need to continue to be cautious.

I will hand over to my fellow commissioner to talk about the issues, in particular about smart meters.

**Ms Aoife MacEvilly:** I will not revisit the history but there was a CBA in 2010 after the initial trial. Along with industry and other key stakeholders, many of whom are around the table, we went into a high level design process to ascertain how this smart metering project would work in Ireland. We had a CBA rerun in early 2014 whereby we had a broadly neutral outcome and decided to continue to progress with the project. Since then we have been very much into detailed design and delivery. In the detailed design of the policy framework within which the smart meters would be rolled out and from the point of view of the ESB networks and the suppliers in the market, much more detailed analyses of the level of systems upgrades would be required and the mechanics of how it will work.

As Mr. Peter O'Shea mentioned, we are coming to the point where the ESB will tender to procure the communications and the smart metering and the final CBA that was mentioned is really the last gate where we have real financial information coming through from a tendering process to test our CBA and demonstrate that this is going to deliver the benefits for consumers.

I would not describe myself as happy that it has taken this long, but I accept that this is an enormously complex and challenging project with a significant level of technical requirements. The way we have designed this and the reason we have taken so much time at high level design and detailed policy design is that we want to ensure this project delivers for consumers. In some of the other examples in the European Union, where projects have been rolled out it has been very much based on system operational type requirements to help with meter reads only or to address theft issues in Italy and it did not actually deliver the full benefits to consumers. We have taken a lot of time and we have probably added some additional functionality to what we are looking for from the Irish smart metering project which has added to the complexity. It has taken longer but we hope this is getting real in terms of having the tendering information and the ability to hit the green button and go.

**Chairman:** I will bring in the ESB at this point.

**Mr. Peter O'Shea:** I suggest that my colleague, Mr. John Lawlor address the issue of the

target for 2050 and I will then address the biomass on the CAPEX programme and on the funding question.

**Mr. John Lawlor:** In terms of decarbonising the electricity system by 100%, that was not precisely what we said in public. I do not believe we actually said it. We have talked about decarbonising the energy system by between 80% to 95% and to do so, we see what I call intermittent renewables going to somewhere between 50% to 60% of the final electricity generation, the other 50% would be what I consider old technology of synchronous generators. Those synchronous generators might be biomass, which is zero carbon, carbon capture and storage, in which case there is always a residual amount of carbon going into the atmosphere. For cost reasons, they might be peaking plant, which may not even have carbon capturing storage. They will be largely decarbonised electricity system but there will still be a residual amount of carbon.

**Deputy Eamon Ryan:** Does Mr. Lawlor think that by 2050, we will be running 50% of our system in traditional baseload or peaking or other?

**Mr. John Lawlor:** No. I referred to synchronous generators. We need synchronous generators.

**Deputy Eamon Ryan:** Typified inertia.

**Mr. John Lawlor:** The alternative is reams of storage at a level, and that would be very difficult.

**Deputy Eamon Ryan:** Or interconnection. I would go and look and see what other systems are doing. I cannot believe that within the Paris climate agreement that we are not looking at 100% decarbonisation. Whatever problems we have in agriculture and transport, if we are not doing it in power generation, I cannot see how we will meet the Paris Agreement targets. We will miss out. I am surprised that the ESB would not be looking to be at the forefront of where other progressive utility is going, which is around that variability management supply and demand and all sorts of flywheel technology and different ways of providing that synchronous system. I am staggered that the ESB has so little ambition.

**Mr. Peter O'Shea:** Let me pick up on Deputy Ryan's point.

**Senator Michael McDowell:** What about the Turlough Hill station?

**Mr. Peter O'Shea:** Turlough Hill is interesting because we did an analysis a couple of weeks back on what a full day of electricity storage would require, if we had to rely totally on intermittent energy. If the wind did not blow and the sun did not shine we would need 16 new Turlough Hills to provide one day's energy.

Let me revert to the main point. From our perspective, we see the decarbonisation of the electricity system as a two lap race. The first lap is what we are doing at present, which is about of incremental growth in the existing renewable technologies. We see that getting us to somewhere between 50% and 60% of the system some time in the next decade, perhaps the middle of that decade. The second lap is much more difficult and this is what informs the perspective we take on the clean energy package. There is not a silver bullet technology to deal with that second lap and take the other 50% from the system. The large-scale technologies are the likes of carbon capture and storage, biomass, interconnection or unabated gas, although there are still significant issues with carbon with unabated gas.

The second stage of this journey is much more difficult to a large extent. Our perspective on the directive is how to keep options open for Ireland. The Deputy asked a question about biomass and there is some very positive stuff on biomass in the directive. It focuses on quality biomass and how it is produced rather than used; how it is produced determines how sustainable it is. That is partly related to the sustainability question and partly related to food chain impact. It is a serious development at a European level and that is positive. We see it as a concern that the draft directive would require that a biomass source would be coupled with a heat source in the same location. That is a constraint we do not need right now; we do not need to answer the question right now so why put in that constraint at a European level? Ireland has limited options as to how it can address the second lap of its race and from our perspective, we should keep options open rather than closing them. The challenge here is too big to have options closed.

**Chairman:** Will Mr. O'Shea deal with capital spend?

**Mr. Peter O'Shea:** Our capital spend in a year is approximately €800 million. The majority would be on networks in Northern Ireland and the Republic of Ireland. We also invest in wind, and as I mentioned earlier we have a joint venture with Kingspan on solar power. There are a number of other areas and I can get----

**Deputy Eamon Ryan:** How much is non-network spending?

**Mr. Peter O'Shea:** I would have to get that and I am happy to do so. We access capital markets for a large part of our funding. We do not see the retrofit scheme as something we take on and do ourselves but we will certainly want to be part of it. Only last week I attended the launch by Durkan Homes of the near zero housing regime in Citywest. It is a fabulous development of 60 or 100 houses and Electric Ireland was part of delivering those. That is the sort of thing that must be ramped up, with policy and support to help around governance.

**Deputy Eamon Ryan:** So the Electricity Supply Board looks to the bond markets rather than the European Investment Bank, EIB, or a European facility like the Juncker investment fund for money.

**Mr. Peter O'Shea:** I am certain we have sought and used the EIB but I could not be definitive in terms of the Juncker fund. I would be surprised if we are not looking at that.

**Deputy Eamon Ryan:** Will the witness provide details on that?

**Mr. Peter O'Shea:** Yes.

**Chairman:** It would be great if that could be submitted to the committee. I will allow the representatives of EirGrid to finish answering those questions.

**Mr. Fintan Slye:** To pick up on Dr. Cotter's comments on modelling, only two weeks ago we launched a document around tomorrow's energy scenarios, looking to 2035 and 2050 and outlining the different scenarios around how our energy system could evolve. From our perspective, it asks what this means in terms of planning for the electricity system, both in terms of the type of generation portfolio and networks that are required and how think all of that will play out. We published four draft scenarios and we have done much consultation with our colleagues around this table and in other parts of the industry before their publication. The idea now is to do a number of workshops around the country and get stakeholder input to form what we believe are those scenarios. They incorporate elements such as what we think about the take-up of electric vehicles and whether it will accelerate dramatically or continue at the same

pace. We have scenarios looking at both those options.

There is also the question of data centres and the extent to which they continue to come at the rate we have seen over the past two years. We have worked very closely with IDA Ireland over the past two years on a number of projects by high-profile American companies. These are the likes of Apple, Facebook and Amazon, Intel, Google and Microsoft. They are all siting big data centres here and some of them are very large users of electricity. Depending on the number, as Dr. Cotter pointed out, they have the ability to make a material difference to what one might think is the energy load to 2020, 2030 and beyond. That is the scenario piece we launched only two weeks ago. A consultation will now run for the next six weeks trying to get feedback on those scenarios and making sure we have captured all the key variables. Our plans will be tested against those scenarios so we can ensure any plan for investment we might have is robust. That is under way and it takes care of the various scenarios.

Deputy Ryan had a question about North-South interconnection and what authorities in Northern Ireland would do in the event that it did not go ahead. In the first instance there would be a very serious security of supply issue, for which they would need short-term solutions. The Deputy queried whether an interconnector to Scotland would be one of those. The timeline on that would be so far beyond what they would need in terms of security of supply as not to make it a solution for the next five or more years. It may be a longer-term solution but the time horizon for delivering something of the scale of an interconnector to Scotland would be way beyond addressing the real and urgent security of supply that they have. They have undoubtedly looked at all the possibilities, including commissioning, generation and other options, albeit with significant issues.

Before I speak about the Celtic interconnector, there was a question as to whether we examined other interconnectors to countries, with the obvious example being the United Kingdom. In 2010, when we were well on the way to finalising the east-west interconnector, which runs from Meath to Wales, we did a feasibility study on what would be the next interconnector or interconnectors that we should look at. We considered the UK and France. The French interconnector looked more beneficial in terms of Irish consumers and the benefit to the country and we sought to engage with the French around that. In the period since, some private developers came along and looked to build interconnectors between Ireland and the UK. Some of that was tied up with the proposal in approximately 2012 of a renewables export from the midlands to the UK but that proposal in terms of interconnectors and renewables export has gone. However, one of those developers is still pursuing the option of an interconnector between Ireland and the UK and looking at it as an option. As there is a private developer looking at it and we are involved with the detailed work on a French interconnector, which our initial studies indicated was more valuable, we have continued to focus on that.

There is a project that has projects of common interest, PCI, status and the private company examining it would have it as an interconnector available for use in the system not tied to any specific generation. That project is still there and that is why we focused on the French interconnector. The French interconnector made sense before Brexit was even a twinkle in David Cameron's eye but it probably makes more strategic sense, given the vote of the British people in the middle of last year in terms of strategic importance to this island and the country. That is where we are. The Deputy mentioned the Cohesion Fund and the most allowed into any project is 50%. All phases to date have been funded to that limit by the Connecting European facility. We will continue to seek for them to fund it.

The Senator had a question concerning the Celtic interconnector and a potential comparison

with Moneypoint, asking if €1 billion for 700 MW made sense. One way of looking at it is we will pay half, which means it is €500 million for 700 MW. A typical 450 MW combined cycle gas turbine, which is the best-in-class type of unit, will cost approximately €450 million. On a megawatts of available capacity basis, it is probably a slightly better option. Celtic has the potential to deliver a number of benefits. There is the ability to access cheaper power in France, and it has a fleet of base load nuclear plants that it intends to maintain. They are going to move it down slightly in terms of overall share but it will still be 50%, so there is a cheaper base load. There is also the ability to optimise the use of renewable resources here, so that, for example, when it is really windy we don't have to curtail wind power generation. Instead of curtailing it, we can get revenue from it by selling it to the French. There is also the security of supply benefit. Because there is an interconnector there, there is potentially no necessity to build as much capacity on the island to ensure demand is served. We must make sure that when all of those benefits are stacked up, that they outweigh the investment cost, and that it makes sense for Irish consumers. We are acutely conscious that investment costs are certain, and sunk. We need to make sure that the benefits which are projected out into the future will actually materialise. It is a lot of money. At the end of the day, it is Ireland and its consumers who are going to stand behind that, so we are acutely conscious of it.

Deputy Ryan mentioned the fuel mix in the future. We are looking at different options. If one thinks about how to get the power system up to 100%, there are only a number of levers available. The level of instantaneous renewables that can be managed on the system can be increased. We currently have it limited at 60%. We are going to get to 75% by 2020. If that can be pushed up, it will help. The technical analysis to date has not shown how that can be done. We can see how we can get to 75%. We have some really good engineers. We believe that it is possible to go beyond it, but we have not cracked that yet. No one has done 60%, anywhere in the world, but we are doing it. We believe we can get to 75%-----

**Deputy Eamon Ryan:** The 75% is hardly ESB's 50% for starters.

**Mr. Fintan Slye:** The Deputy is mixing and matching. I think 75% is instant change. There is that. Interconnection helps. Demand-side helps. That is the use of the consumer, bringing them in, which our colleagues talked about. Smart meters help in that respect. Also, storage helps. That could be pumped storage in Turlough Hill as we have discussed, but more likely will going to be some of the newer technologies, where the price curve for things like batteries is falling dramatically.

**Chairman:** I thank the witness for his comprehensive reply. Des the ESB witness wish to make some brief comment?

**Mr. Peter O'Shea:** In terms of the 50% and the 75%, the 50% is average, the 75% is instantaneous. They are probably equivalent.

**Deputy Eamon Ryan:** The witness talks about two laps. We are at risk of being lapped at the moment. We are being lapped. We are the fourth of only four countries who are not meeting our renewables targets. It is going to be a mile away from it. It is going to cost us a fortune. We are one of only two European countries who are not going to meet our climate targets. We are under-investing. It has taken eight years to do cost-benefit analysis on smart metering. One has to be careful to get it right, but eight years to do cost-benefit analysis is excessive. I hear that across the sector. We need ambition. We need to start doing things. We are falling behind. We are missing the economic opportunity that we have as a country. It is not all bad. We can be good at this. We are good at balancing the system. We should do it.

**Chairman:** Would one of the witnesses like to come in on that?

**Deputy Michael Lowry:** Be careful of our moneys.

**Chairman:** On behalf of the committee I would like to thank the witnesses for attending this evening. It was a very worthwhile engagement. I propose that the committee publishes the submissions received in relation to the meeting. Is that agreed? Agreed.

I propose that the committee considers that there is no subsidiarity in relation to the EU legislative proposals. It is further proposed that these proposals do not warrant further scrutiny. Is that agreed? Agreed.

The joint committee went into private session at 6.45 p.m. and adjourned at 7 p.m. until 5 p.m. on Tuesday, 28 March 2017.