

DÁIL ÉIREANN

AN COMHCHOISTE UM GHNÍOMHÚ AR SON NA HAERÁIDE

JOINT COMMITTEE ON CLIMATE ACTION

Déardaoin, 16 Bealtaine 2019

Thursday, 16 May 2019

Tháinig an Comhchoiste le chéile ag 3 p.m.

The Joint Committee met at 3 p.m.

Comhaltaí a bhí i láthair / Members present:

Teachtaí Dála / Deputies	Seanadóirí / Senators
Marcella Corcoran Kennedy,	Máire Devine,
Timmy Dooley,	Ian Marshall.
Thomas Pringle,	
Eamon Ryan,	
Brian Stanley.	

Teachta / Deputy Hildegarde Naughton sa Chathaoir / in the Chair.

European Commission Strategy on Climate Action: Discussion

Chairman: I welcome members and the viewers watching our proceedings on Oireachtas TV to the first public session of our newly formed Joint Oireachtas Committee on Climate Action. We have received apologies from Deputies Deering, Heydon, Bríd Smith and Neville and Senators Paul Daly and Grace O’Sullivan.

Before I introduce our witnesses, at the request of the broadcasting and recording services, I will ask members and visitors in the Public Gallery to turn off their mobile phones or put them on flight mode, as they will interfere with the recording system.

I thank Mr. Mauro Petriccione, director general of the Directorate General for Climate Action, or DG CLIMA, and his official, Dr. Quentin Dupriez, policy officer, for attending. I also welcome Mr. Gerry Kiely, head of the European Commission representation in Ireland. On behalf of our Parliament, I wish everyone a warm welcome to Ireland. We are proud members of the European Union and welcome the recent decision by EU leaders to put action on climate change at the top of the Union’s agenda for the next five years. While past performance on climate action across our political parties has not been strong, we are working hard to change that. Climate change has arguably never been higher on the political agenda in Ireland than it is today. Just a few weeks ago, Ireland became the second country in the world to declare a biodiversity and climate emergency, sending a strong message that the Oireachtas is taking these interlinked global challenges seriously. However, it is vital that we go further than a political declaration. We need decisive action.

A recently published report by this committee sets out more than 40 priority recommendations for the Government and State agencies. It addresses actions across all relevant sectors and proposes a new governance framework for climate policy that will pave the way for more transformational changes in individual sectors. The Government is now poised to set out its climate action roadmap, with the Minister for Communications, Climate Action and Environment, Deputy Bruton, due to bring his all-of-Government plan before us in the coming weeks. It will build on our report and set out practical actions to support Ireland in playing its part in addressing the global challenge of climate change fairly. The committee will be responsible for scrutinising that all-of-Government plan and we will hold Ministers and public officials to account for its delivery.

Until the end of this year, we will continue our work examining climate policy in Ireland and driving actions that contribute to Ireland’s national energy and climate plan, which is due to go to the European Commission in December. We hope to have an extension of our mandate to become a permanent committee so that we would hold the Government to account on an ongoing basis. I would like to see our political parties continue to work together, which we have done well until now, on charting a course to stronger action on climate change in Ireland. With continued cross-party support and much work across the Government and all sections of our economy and society, we can get Ireland back on track and keep us there to meet our international climate change obligations. We look forward to hearing from the witnesses regarding the strategy for Europe to become the world’s first major economy to go climate neutral by 2050.

I invite Mr. Petriccione to make his opening address, which we will be happy to hear.

Mr. Mauro Petriccione: I thank the Chairman for her kind introduction. I am happy to be before the committee to give evidence on the European Commission's proposals on a climate-neutral Europe by 2050. I will not elaborate on the impact of climate change. It would be superfluous to do so in front of this committee. Suffice it to say that our concerns continue to increase. The science has not only been very clear, as in the Intergovernmental Panel on Climate Change, IPCC, report last year on the impact of global warming of 1.5°C, but every additional item of scientific information confirms that the situation is perhaps even more difficult than we had envisaged. The urgency is evident. As members have pointed out, we consider the circumstances in Ireland with some concern and look forward to the new national plan to have a clear view on where Ireland intends to redress certain shortcomings.

This is not a surprise or a unique set of circumstances in Europe. The transformation required is massive. It will tax the way we all think in policymaking in Europe. There are shortcomings across the European Union. They differ and are rooted in different national realities but this is the time for all of us to work together to correct them.

Reference was made to the national energy and climate plan Ireland has presented in draft form. The Commission will issue recommendations for all the plans by the end of June. The objective of the Commission is not to sit in judgment on the national plans but to point out where more work is required, encourage the exchange of best practice among member states, flag best practice that other member states could study and imitate, and arrive at a better picture at the end of this year in terms of the national plans and their overall coherence. We do not expect the plans to be perfect. There is a lot of work required in Europe. In certain areas, it is clear that the national legislative and regulatory work will not happen in the space of a few months. This is the start of a process of continuous dialogue between member states and European institutions to improve our policies towards 2030.

We all know the policies we have adopted in legislation for 2030 in themselves will not help us to do our part in reaching the goals of the Paris Agreement but they are, contrary to the views of some, profoundly transformative. If they are implemented in full and correctly, they will be capable of changing the way we address the problem and of teaching us how to continue to accelerate our policymaking towards the objective of climate neutrality.

One of the reasons the Commission has wanted to propose climate neutrality as an objective is that we need an endpoint that is sufficiently ambitious to meet our objectives so as to guide us in the further development of our policies after 2030. At present, however, it is only a proposal by the Commission. A criticism we receive very often is that we are not very explicit about how the policies will be developed after 2030. I will try to give members some indication. The important point is that we now have strong political endorsement at European level. The formal endorsement ought to come from the Heads of State and Government in the European Council. We have advocated and tried to facilitate by supplying information and explanations. It has to be based on deep and strong national debates. We need to have an endorsement of the objective at institutional level but with sufficiently deep roots such that we can examine its implementation over what is an unusually long planning or policy period. Thirty years is not a period we normally operate under.

Having said all this, let me give the members a very brief description of what is in the strategy. First, it is based on a very thorough scientific and economic analysis and the best science we collect. We have seen recently confirmation of the soundness of that approach in the similar

report that the British Committee on Climate Change has produced. In many ways, it confirms our analysis and, in other ways, takes it further. We would welcome more work of that nature in member states and elsewhere. We need to continue to deepen the analysis.

We have analysed eight scenarios. They are not predictions or representations of what the Commission believes Europe will look like in 2050. These scenarios are meant to expose a range of possibilities or options to allow readers to form a judgment on the feasibility of certain policy choices, their implications and what is required to realise them. Five of the scenarios would result in a reduction in greenhouse gas emissions of about 80%. They are based on what we call single technologies. One takes one main technology and makes a number of assumptions to push it as far as one can. With regard to electrification, let us electrify everything we can think of. Let us replace fossil fuels with decarbonised fuels by using the same architecture we have in terms of power generation and distribution. None of the scenarios, under these conditions, is capable of achieving the desired objectives. It is only when one starts combining technologies and creating a more complex system that resembles the complexity of our current economy that one approaches and finally meets the objective of net zero emissions by 2050. Of the two scenarios that describe this, one incorporates a strong analysis of behavioural change, extrapolating from trends we see in our society today. The other scenario introduces a substantial, but still complementary and not mainstream, element of carbon capture. Our analysis nowadays is that carbon capture cannot be the ultimate solution, which would enable us to decarbonise society without changing anything else. There will, however, be applications where carbon capture is likely to prove indispensable if we want to have a total reduction in emissions.

On the basis of these scenarios, the Commission has made a political choice to propose to member states to endorse the objective of carbon neutrality. We have chosen the term to capture a number of the terms that are in common usage in this debate. As is well known in Ireland, there is a real issue concerning emissions in the agriculture and land use sector. European agriculture is one of the core policies of European Union. We are aware that decarbonising and eliminating greenhouse gas emissions from the agricultural sector, at least in the foreseeable future, is likely to be impossible. We have to manage that. I refer also to the notion of net zero, building on the fact that our land sector nowadays has a good carbon balance. Our carbon sink is effective and we ought to maintain, enhance and nurture it over time. One of its functions will be to compensate for emissions outside the agriculture sector, which may prove impossible. I am thinking, for instance, of the most difficult area, namely, aviation. All the scenarios, forecasts and projections are based on the preventative assumption that we have the technology to meet the objective. We are not relying on new inventions and we are not relying on future and unproven technologies. Granted, some of these technologies have not been tested at scale. They have been tested in pilot projects, however, and are known to work. It is not clear how much of a scale is needed to make some of them commercially viable. It is already clear that some of them would benefit from further research and refinement. I am thinking of batteries, for instance, with storage of electricity being one of the bottlenecks we have identified. The fact remains that this is a prudential analysis based on technologies that we have and that we can use and improve without having to adopt a revolutionary approach or without having to hope that our scientists will produce a miracle solution.

The other important aspect is that this is as much a strategy for economic development as for climate action. Our assumption has always been that any strategy which did not guarantee the continuing prosperity of European society and economy had very little chance to be politically acceptable, even for a purpose as important as climate change. We have concentrated on developing a strategy which concentrates as much on prosperity.

The existing situation is not satisfactory. We have an economy which is still doing reasonably well but has many fragilities, and our competitiveness is under pressure from competitors abroad. We are losing the technological lead and must spend important capital to modernise our industrial fabric. Our energy supply continues to be outside our control with serious implications on energy security and independence. We have tried to develop a strategy which addresses these issues as well as climate change and we believe that this strategy is capable of doing that. This is an investment strategy.

One of the difficulties is that much of the necessary investment is front-loaded over the next ten to 15 years. That will be a challenge. At the same time, there is an enormous appetite in the private sector for finding ways to deploy capital in this direction. One of the priorities, in the view of the Commission, is to concentrate on ways to facilitate and incentivise the employment of private capital in this direction. We see this, essentially, as an investment challenge as opposed to a cost issue. The cost is the impact of climate change and these are investments to avoid those costs.

I am happy to answer any questions that the committee has.

Chairman: I omitted earlier to read out matters to do with privilege. I will then go through the speakers in order of the speaking sheet that members have in front of them. I wish to advise witnesses that 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 committee. However, if they are directed by the committee to cease giving evidence on a particular matter and they continue to do so, they are entitled thereafter only to a 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 they are asked to respect the parliamentary practice to the effect that, where possible, they should not criticise or make charges against any person, persons or entity by name or in such a way as to make him, her or it identifiable.

Members are reminded of the long-standing ruling of the Chair to the effect that members 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.

The first name on my list is Deputy Dooley, if he wishes to come in now, or I can take members in the order they request.

Deputy Timmy Dooley: That is fine and I will not detain our guests because I know there will be many questions. I thank them for being here and for their presentation which is welcome, considering the state of our preparedness to address climate change. We all recognise that we are well behind in addressing it. The Citizens' Assembly has given us in the Oireachtas food for thought by encouraging us to prepare a report which we have just published. It is now for the Government to set out an action plan for addressing climate change, and that is welcome.

I noted, within the presentation, something that is often missed in the climate change debate, which is the economic opportunity of the potential developments. That is often lost. Climate change, and the actions that flow from that, have only negative connotations in the minds of some. There is also a positive side to it. That said, we must also address, as the committee did in its report, the necessity to have a just transition for those sectors of the economy that will be negatively affected by the behavioural change that is necessary to address climate change. I hope the Commission will be mindful of that and support member states that will have particular difficulties in addressing that.

My question is about the consistency of the EU's climate strategy and specifically the targets of the Paris Agreement objectives. Would our guests comment on the recent European Parliament resolution that the EU's 2030 target must be increased by 55% to get to net zero by 2050? I believe that is based on hard evidence but not every member state has signed up to that, including Ireland. We must get serious and not only talk about it. Any of the model trajectories for achieving the targets by 2050 suggest that the sooner we start, the easier it will be and the less impact there will be annually. It obviously makes sense to bite the bullet now rather than later. Perhaps Mr. Petriccione will comment on that.

Chairman: Does Mr. Petriccione wish to come in now?

Mr. Mauro Petriccione: I am in the Chairperson's hands.

Chairman: We will take a few more questions. Deputy Corcoran Kennedy is next.

Deputy Marcella Corcoran Kennedy: I thank all our guests for coming to meet us this afternoon and I wish them céad míle fáilte. The committee recently presented its climate action report to the Minister, Deputy Bruton, and the Dáil. We were very conscious of a just transition for our peat industry when we were considering that report and yet our Government has had to commit to not using peat for energy generation after 2028. We have three power stations, two of which are based in Edenderry and Shannonbridge in County Offaly, which I represent. Many jobs are already being impacted and even more will be over the next decade. Is it possible for Ireland to source EU funding for such regions? EU funding is currently limited to the coal regions and I am anxious to see that extended.

Agriculture is the cornerstone of our economy, but we are aware that it is responsible for about one third of our emissions. Mr. Petriccione has spoken about building the bio-economy and natural carbon sinks. Has he any comment to make on whether there are specific areas or actions we can take to reduce our emissions profile from agriculture?

My final question is about the potential for carbon sequestration in our peat lands and our capacity to increase forestation. Could the benefits for land use, land use change and forestry, LULUCF, from carbon sinks such as these be used to offset emissions in the agricultural sector or other emissions across the economy?

Deputy Brian Stanley: I also welcome our guests. Co-operation on a European level to protect the planet and reduce global warming through climate action is very important. The proposal our guests are putting forward seems to put sustainable development goals on the same level as industrial competitiveness. That needs to be examined. I agree with Mr. Petriccione that, while it may seem burdensome that we must reduce emissions and change habits, it presents opportunities for different types of economics and industries. That is the big change we must make and Mr. Petriccione might comment on that.

My other question relates to our failure. I was a Member of the previous Dáil which legislated five years ago for climate action. I expressed concerns at that time that we did not have sectoral targets or marked milestones or staging posts for reaching achievable, measurable target by stages. The concern is that we have drifted into our current position as a result of that. Will the witness comment on that? How important is it to have set carbon budgets?

My last question is about just transition. Like Deputy Corcoran Kennedy, I live in a part of the country where peat extraction for horticulture, domestic fuel and fuel to generate energy will be phased out. It is accepted that this must happen. However, it has already created much

unemployment in County Laois, where I live. Some of it is caused by the phasing out of horticultural peat. Where previously there were up to 300 people working there during the summer, now there are three or four. Some type of package of matching funding is needed to assist Bord na Móna, in particular. Bord na Móna is a semi-State company and it is trying to move from the brown extraction industry, the extraction of peat, to regenerating biodiversity and renewable energy. It is trying to move from brown to green and it needs help to do that. It needs approximately €50 million, to quote the figure it has mentioned. Will the witness comment on that? We believe it would help the Irish economy, which has come through a difficult stage following the economic crash. We are beginning to emerge from that but this would help a part of Ireland, the midlands, where the income per head of population is much lower than it is in the Dublin region. We are anxious to create more balanced development, and it is a goal of the European Union not to have regions lagging behind.

Mr. Mauro Petriccione: I thank the members for the questions. I will start with just transition, the common thread among the questions. First, I return to the issue that our current economic model is being challenged in any event by a number of mega trends. Climate change is perhaps the most urgent because of its disruptive nature on our entire planet and society, but if we limit ourselves to our economic fabric, digitisation, automation, artificial intelligence, the development of three dimensional, 3D, printing and the competitive rise of other economies in the world are all imposing pressure and, by and large, and I am not saying this is a precise view, the sectors and areas that are under pressure are always the same. The question of just transition grafts itself onto the bigger issue of accompanying the changes in our economy in a fair and equitable manner. There are some instruments in Europe at European and national levels. We have made good use of them but we could always do with more and better. I do not wish to sing the praises of the policies we have and claim they are sufficient to resolve the problem. The only claim I am making is that this is an additional facet and adds pressure to areas, sectors and people which are already under pressure and towards whom we already have an obligation to act and solve the problem. That might facilitate the issue in some ways because we can use some of the instruments we already have.

The second point is that one of the issues with which we have traditionally struggled has been what the transition should be towards. The problem has often been not so much finding the resources to ease the exit of workers from a certain sector in a certain area but to provide them with viable, long-term, stable and sustainable alternatives. It has often been not so much what we do in the immediate term but what we should do it for in the longer term. The economic development we see as a consequence of the climate transformation is at least capable of facilitating this, although I am not offering certainties here.

On the question of how to convert workers in areas of traditional agricultural production that need to adapt or in the peatland the two Deputies mentioned, one of the assumptions we made in our analysis is that a very important component of the transition will have to be development of the use of biomass. To be usable for a climate transition, biomass must be accompanied by technology such as carbon sequestration, but we must also think of where the biomass comes from. We do not wish to import massive deforestation from abroad or to alter our carbon sink, but if one looks at our analysis, there is plenty of space in Europe by improving agricultural practices, improving forest management practices, converting what is currently economically marginal agricultural land to the production of biomass and bringing back into production some of the land that was set aside in the past to reduce our agricultural surpluses.

There are objective reasons to believe that, well managed, we could double our production

of biomass and make that into a very important component of the transformation. That will happen, by and large, in many of these challenged rural areas. The instruments for a transition are available under the Common Agricultural Policy, the Cohesion Fund and the European Social Fund. I will not pretend that these funds alone are sufficient to solve all the problems of this type that we will have in Europe, but members of the committee know that Ireland has been an important and effective user of these funds and that they can be used to very good purpose. They can be matched by national funds. If planned, this is one of the instruments we can use to ease the transition.

On the question of peat as a fuel, the Deputy's question also poses a longer-term challenge. Aside from the climate transition, that production is only there because it is subsidised. We all know that at some point in the longer term the pressure to stop the subsidisation will grow. In any event we need to find alternatives to ease transition. A similar problem arises with coal production in a number of member states. Some member states have already implemented measures. I have in mind the Spanish Government and the measure it has taken to ease the exit from coal in terms of closing the publicly owned mines. That has been accompanied by an important social package, supported by national and European resources. The situation is more difficult for other member states such as Poland and Germany. Other countries such as Slovakia are also exiting coal through the same or similar mechanisms of support.

To summarise, a just transition is essential. A transition which is perceived as being unjust or as adding unduly to pressure that people in some sectors or areas already feel has very little chance of succeeding and receiving political support. We do have the instruments to accompany those transitions. The climate transition does not in itself create the problem of transition alone. It is a problem we already have and which we already need to solve. It might direct us towards a longer-term, more viable and more sustainable solution than might otherwise be the case. We do not see it as an easy challenge; we see it as a very serious issue that is inevitable with or without the climate transition.

On economic opportunities, it is very difficult to express without falling into one extreme or the other, but it is a climate action strategy. Its objective is to stop climate change, first by enabling Europe to do its part and second, by Europe offering a successful model for others to follow to solve a global problem. Since this requires a deep transformation of the economy, we think it is impossible to affect this transformation by stopping segments of our economy. By definition, the only viable climate strategy is one that transforms our economy into an equally functioning economy but one that is decarbonised and clean. When I refer to the counterfactual, which I know reasonably well having spent 30 years of my career in trade policy, the kind of economy that we are trying to describe in the long-term strategy is one that is probably going to be more advantageous to us and a better economy than the one we have today, which is not to be taken for granted. Maintaining our economy today will be very expensive in the next years and decades. That money could be wasted because climate change and the lack of resilience of this economic model could destroy all the efforts we would make in maintaining it.

On the European Parliament's resolution, there is a debate on the nature of the trajectory between now and 2050. If one thinks in terms of linear development, then yes, the minus 40% to which we have committed and the minus 45% which we will achieve on the basis of our current legislation, if properly implemented, is not sufficient. It needs to go in the region of minus 55%. On the other hand - and I am sure the committee has had plenty of experience on this - policy developments are rarely linear over the long term. They are much more likely to be based on a progression where policies are started as one can and further developed and accelerated. If one

looks at European climate policy, which we started only after 1990, between 1990 and 2017 we reduced our emissions by 22% while increasing our GDP by 58%. The 2030 legislation will bring us to reducing emissions by another 23% in 13 years, between 2018 and 2030. That means basically doubling the rate of change. That will not be sufficient but it shows that one can accelerate a policy change and in fact, there are arguments to say that if we had tried in 1990 to set the kind of target that would bring us in a linear fashion to where we are today, we would have failed. The Commission's perspective is from a pragmatic policy approach. The 2030 legislation is what it is. It is what could meet the consensus among member states and the European Parliament. It is already transformative. Take the example of passenger cars: a 37% reduction between now and 2030 is capable - I have no guarantee that it will do so - of triggering a transformation that will make further standards unnecessary because if manufacturers are pushed to put sufficient numbers of electric models on the roads at prices comparable to combustion vehicles, the market is ready to absorb it. This involves us doing our part in financing the necessary infrastructure for charging, for instance. If that does not happen and those standards are not sufficient, we will have to legislate new and stricter standards for post 2030. The Parliament resolution is based on one assumption, which is that policy is developed exclusively in a linear fashion. That is certainly not true. Whether linear development or a progression is the best is an open question - there is a debate on that - but it is certainly not true that policies can only be done in a linear fashion.

Finally, the issue of sectoral targets is another debate. Our judgment has been that sectoral targets at European level are very unlikely to be the basis for a consensus and that it would have been very difficult to operate them effectively at European level. That does not mean that they cannot be set and operated at national level. Some member states have experimented with that, some more successfully than others. There is no perfect, or even good recipe, on sectoral targets. In the same spirit, with the effort-sharing decision and now the effort-sharing regulation, we have experimented with a combination of a European-wide target and national targets. The one thing I would add is that at European level - and several member states, including Ireland now, have made the same choice - it has been decided that planning is the tool to translate overall mandatory targets into specific policies and measures. Hence the governance regulation and the obligation for all member states to equip themselves with a national energy and climate plan. Some member states have gone further. One reason I am looking forward to seeing the Irish Government's whole-of-government approach, as announced, is because from the description, it could go further in its precision and reach over the plans in the governance regulation. My own country has successfully experimented with allocating the national targets on a regional basis and involving the regional institutions, governments and parliaments in the planning. It has worked extremely well for the 2020 targets and it is repeating the experiment for the 2030 target. For us, what is important is that as a member state, we have created a European framework that encourages better planning. We see that there is a take-up of this by member states which often goes further than the minimum European standard. We think that is a very good thing and that it will be a very useful instrument for the future.

Chairman: I will move onto our next round of speakers. I call Deputies Eamon Ryan and Pringle and Senator Devine.

Deputy Eamon Ryan: The Commission and the outgoing Parliament have done a good job on the whole green energy package, particularly in the governance mechanisms which have been put in place. It has dragged the Council forward and I commend the Commission on how it has done that. However, now we have to act.

The Irish plan, which we will see in June, is critical for us. This committee has looked at this matter in detail over the last year. We cannot be exact but we will have a gap of approximately 100 million tonnes from our 2030 target. The national development plan, which was approved last June, had no climate assessment done in respect of it at all. The modelling done since shows that it might only bring us one third of the way in which we might need to go to meet our 2030 target, let alone a target of a net zero by 2050. It does not think that way. In transport, our emissions are projected to rise even if we get 500,000 electric vehicles, as has been expressed. Our transport policy goes completely against the one the Commission set out in point No. 3 of its seven points. We are continuing to follow a sprawled transport model. We have 51 major national roads and motorway programmes under construction and in planning. We do not have a single public transport project at the same stage. Our commuting distances are lengthening. The emissions projections from that do not relate to just the transport sector but the construction of services infrastructure to service this sprawled model that we are following. Similarly, with regard to heat, we have a target in our national development plan to have 45,000 houses a year retrofitted and upgraded to a building energy rating, BER, of B1 or higher. Last year, we did 1,000 houses at most. We are a minute fraction of the way towards achieving this. Even though the national development plan has projects that would give emissions reductions, the truth is that they are not being delivered in reality. The chances of that changing within two years at the starting point of this new strategy are minimal.

We have potential for carbon sequestration and storage in forestry. There is widespread public opposition to the nature of forestry in Ireland at present. The short rotation, single crop, monocultural forestry model has reached the end of the road with regard to public acceptance and we do not have an alternative forestry plan in place.

Also with regard to heat, we had an interesting session in this room yesterday where the key people working in the retrofitting industry acknowledged that we have no apprenticeships ready to do the work. The Department responsible for that is doing nothing about it. We cannot get the workers here today to start the energy efficiency work that we need to do. The entire range of things that we need to do are not happening. That 100 million tonne gap might be an optimistic forecast of where we are.

The Government and Civil Service are working diligently and there is greatly increased political interest in this subject, so we will try to do our best. What adjustment mechanisms does the Commission intend to plan if it sees a plan come to it in June which does not have realistic measures to close that gap? Ireland is committing to a 30% target as part of the EU's overall effort, which feeds into Europe's commitment in the Paris Agreement. If a country clearly is not closing that gap, especially in the non-emissions trading system sector, where our problems are most acute, what adjustment mechanisms does the Commission intend to apply? How will that work in the six months to the end of December, when one would expect this plan to be signed off on? Critically, in a country where we have a minority Government and the Parliament has real voting power, with this committee being a good example of how we can work well together as a Parliament, what access mechanisms will there be for members of this committee to the Commission with regard to this process? What I like about the governance mechanisms the Commission has written for this process is that it is not a centralised top-down approach but encourages consultation, transparency and involvement.

As committee members with a real interest in this issue and a certain expertise, having worked on this in detail for the last year, what is our involvement in the Commission's process with the Government? Will the Commission be open to engagement with parliamentary com-

mittees or parliamentarians in this process of checking, testing and revising? There is no doubt that it will not finish by December. It is a plan which will evolve as we learn. What is the Commission's capability to connect with parliamentary systems in this evolving process?

I have a technical question. I like that the Commission's approach has been trying to move away from everyone working individually but recognises that one has to look to one's neighbours to meet this challenge. We are required to ask what we could do to meet our needs by using interconnection rather than every country going alone. We have difficult circumstances in that regard because we do not know the position of the United Kingdom. It will have European Parliament elections next week and one does not know for how long those MEPs will sit. There are two critical aspects for us in this transition. We are ambitious to become one of the leading countries in running a renewable electricity system, with 70% of our electricity coming from variable power supply. As an isolated synchronous grid, that is quite a challenge. To meet it, we have to have a further integrated connection, not just with France but also with the United Kingdom. How do we write our plan with that uncertainty? My preference is that we continue to see the United Kingdom, in effect, as a member of the single electricity market and do not freeze it out of this process. It is in all of our interests, including the continental countries, to have the UK as a balancing partner.

With regard to gas security, we have one field, which will diminish over the lifetime of this plan. We will be completely dependent on the UK gas interconnection. I believe we should depend on that. I do not believe that we should introduce liquefied natural gas, since additional gas infrastructure would be a stranded asset. What assurances can the Commission give us, considering Brexit, with regard to gas security? What plans is the Commission making to ensure gas security in a difficult political world?

Mr. Petriccione rightly made the point that we are dealing with very complex systems with a more integrated response. We declared a climate emergency two weeks ago, which is a very important statement by this Parliament. It was also a declaration of a biodiversity emergency. It is vital that, whatever we do with regard to climate, we integrate the need to restore our natural systems in the responses that we make. I am interested to know how the Commission sees that working. I am concerned with some of the mention Mr. Petriccione made about the increase in biomass production. That may have significant consequences for biodiversity on our island. I say that because he mentioned marginal wetlands potentially being used for the production of biomass. Those wetlands are vital as a carbon storage space and for the protection of biodiversity. We have seen in Northern Ireland, part of our island, that incentives for biomass production and anaerobic digestion have led to substantial expansion of pig and poultry production. There are significant knock-on consequences from some biomass solutions that may be turned to. How do the witnesses stitch biodiversity protection into climate action within a plan?

Deputy Thomas Pringle: I thank Mr. Petriccione for his contribution, about which he already has been asked very detailed questions. I have a number of questions on the strategy and about one of his earlier answers. He said the Commission is looking at how the policy will develop to 2030, and that it will be able to react then to see if it needs to change and have a more detailed structure. At what point will the Commission react? Will it be at 2030 or earlier? Mr. Petriccione used an example of the roll-out of electric vehicles.

With regard to the long-term strategy and its legal status, I am not certain how the Commission can force member states to comply with it. Will the witnesses address that further? We are very slow to respond even when there is a way to force us but if there is no way to force us, I do not know how we will ever respond at all.

Will the witnesses address the 1.5°C goal and reduction targets? Now is the time to react on that. The Commission is saying that if the strategy is successful, it will not achieve that but will show that it can be achieved. Surely it needs to aim to achieve that now to be effective in making that happen, especially with the reduction in stranded assets that could happen if the target was set now rather than waiting to 2050.

With regard to the use of fossil fuels in the EU's strategy, how does the Commission view the ongoing use of fossil fuels? There cannot be a transition fuel. What are their views on the strategy in the context of Ireland? It seems we are interested in developing alternative fossil fuels and offshore gas fields and dressing this up as being for security when that is actually not the case. How does it contribute to the overall European aims?

Senator Máire Devine: As the title of the presentation indicates, it is important to constantly tie in climate action and the economy because that would bring people with us. The explosion of scientific evidence recently has scared the living daylights out of people so we need something that will encourage them. Positivity and the psychology of change are important and we need to keep speaking about the benefits. We are being scared witless and change can be very difficult. Air pollution is a problem in Europe. There have been 800,000 deaths as a result of it, as well as incidences of respiratory tract diseases, infections and conditions such as asthma. Pollution has an impact on public health. Can our guests comment on our approach to air quality? Is it included in our long-term strategy?

Migration to Europe will increase as a result of climate change. What are our policies in this area? Some areas are already pretty poor but we will be inundated with people fleeing famine and flood. It is projected that by 2050 or 2075, 70% of the world's population will live in urban areas, with a depopulated rural landscape. Has that come into the reckoning as regards the impact of climate change? What can we do to rebalance the situation?

Deputy Eamon Ryan referred to our housing stock and the paucity of retrofitting, which is much needed in our cold climate on the edge of Europe. Is it feasible to provide low-cost loans to enable people to retrofit? In the Government plan, there were only 1,000 loans and many more rejections. People on the threshold had no incentive to retrofit and they do not have the means as they are living in borderline poverty. Would the EU play a part? Our guests were presented with eight long-term strategic options, two of which seemed achievable for the 1.5°C scenario. Lifestyle changes are also a factor and it makes sense to invest to address that scenario. Will the Commission prioritise natural solutions to climate change over geo-engineering?

We are going to miss the 2020 emissions targets and we may well miss the 2030 targets, which means that we will face significant fines. Is there a real potential for these fines? Can our guests provide an assessment of the fines?

Senator Ian Marshall: Deputies Eamon Ryan and Pringle have asked similar questions but my concern is about the review process. It is one thing to have a plan but it is equally important to have a review process as that enables us to react if we are ahead of - or behind - the curve. Can our guests provide a bit more clarity on what the review process looks like? The pace of technology is so fast that the landscape may have changed dramatically in the next few years and our initial plan may need to change.

This is a European strategy but how does it sit in the global context? Is it in isolation from or oblivious of developments in other countries and on other continents? Is there delivery or a failure to deliver in other parts of the world? Does the Commission take note and react to global

developments in the discussion relating to the climate?

Chairman: Mr. Petriccione may answer the questions in any order he sees fit.

Mr. Mauro Petriccione: Deputy Eamon Ryan's question might cover much of what was asked by the various members. There is full respect for institutional relations and we will not interact with national parliaments in a way that diminishes the prerogative of national governments or interferes with the constitutional process in member states. It is not our role or mandate - that is anathema to us. We are talking about debate, information and analysis. Our job is to provide the whole of Europe with the best analysis, the best options and the best solutions we can devise. By definition, that includes, indeed prioritises, institutional actors in member states. We have neither the resources nor the role to regularly contact national parliaments directly. Nevertheless, the door of the Commission is open to any citizen who wants to communicate with us and, especially, to people's representatives. If this committee, or individual Members of the Irish Parliament, wish to continue this exchange, our doors are open, directly, in person or by electronic means. Our representations in member states are there to facilitate this exchange and we will do the best we can in this respect. I always tell people that I will answer their questions. If they want a fast answer, they should ask an urgent question but the resources of the Commission are what they are, while my Directorate-General has just 200 people to run the Europe-wide climate policy. To the despair of my staff, I spend 80% of my time having this kind of discussion. If there is anything missing from this conversation we will be very happy to provide it.

A question that was asked by many members was on house renovation. We see energy efficiency as a key to energy transformation. It has emerged, from the overall view of the national energy and climate plans for member states, that current plans and policies for energy efficiency are insufficient to reach the 32.5% target for 2030, let alone to be scaled up towards 2050, when we foresee a reduction of energy consumption by approximately 50% as necessary to achieve our objectives. That is a fact; it is not a statement that is meant to scare anybody. The recommendation on the national plans which the Commission will issue in June identifies this as an area for priority action. We need to develop more and better ideas and better plans, measures and policies on energy efficiency. Building for innovation is crucial in that regard. Regulations for new buildings can always improve, but in our view they are more or less adequate. Renovation of existing buildings is a real issue. It is also the great reservoir of energy gains. The major stumbling block in that area is financing. It is not so much the cost of financing; we can always subsidise interest rates. Doing so is not very expensive. However, many individual homeowners, small enterprises running small clusters of business for residential or commercial rental purposes and local authorities managing social housing simply do not have a credit rating that enables them to borrow. Moreover, a publicly financed mechanism cannot provide the necessary scale. By and large, this transformation cannot be paid for entirely out of the public purse. It is beyond our capability.

Having said that, we have strong evidence that there is massive interest in the private sector in contributing to this. There is capital in Europe in search of gainful employment. The issue concerns the measures to be taken. How do we bridge the gap between the availability of finance, the risk factor and the uses to which we want to direct it? It is possible but not easy. I have one practical example. We are, through the LIFE programme, financing a pilot project whereby the Commission will allocate a reasonable amount of funding to act as collateral for commercial loans. Over five years, this will amount to almost €150 million. It is beginning to work. It is not a subsidy to the bank or the owner. These are commercial loans, but the ex-

istence of public money as collateral lowers the risk profile of the borrowers and enables the commercial bank to make a loan it would otherwise find too risky. We have been struggling with this project because commercial banks are not used to it. They are not used to evaluating projects of this kind because they have considered them too risky. As such, they do not usually even look at them. Together with the European Investment Bank, we have had to invest money in programmes helping participating commercial banks to train staff to assess these loans quite apart from the question of the financial risk. They assess whether the borrower is trustworthy and carry out the rest of the commercial operations. It is now beginning to work. We must decide whether this project is worth completing and replicating or whether we should do something else.

One point we must put squarely on the table is that there should be collective work between European institutions, member states and the financial sector to devise mechanisms to bridge the gap between bringing about the climate transition and the availability of private capital, which is largely unemployed in Europe. One of the natural but unpleasant effects of the tightening of our credit system after the financial crash is that we have made our banking system much more risk-averse than before. As the members know, when we talk about appreciation of risk it is easy to swing in the opposite direction. We need a correction in that regard. There is appetite for that in the financial sector and work on it is afoot. It is not a simple issue but it is fundamental. Apart from energy efficiency, the side benefits of housing renovation in public health and quality of life are potentially enormous. There is a huge amount of real estate capital in Europe that could benefit. That is without even mentioning the situation in eastern Europe, where much of the housing stock dates from the Soviet era. Members can imagine the quality of that housing stock.

One of the members stated something that was spot on. Current plans are not the right type of thinking. The Commission maintains that this transformation requires a qualitative change in the way we think. Emissions reductions are no longer enough. Such reductions need to be capable of being scaled up towards zero. Not all policies are equally good in that respect. We need policies that are capable of transforming our economic model in a sustainable and potentially indefinite manner. They have to fit with other mega-trends. We cannot think of clean mobility and electric cars separately to the trend towards automated cars. This requires a radical change in the way we think. The way our world is developing will force that change on us regardless of whether we like it. We see the energy transformation and the climate transformation as one of the opportunities to take control of that process rather than being victims of it. We are not pretending it is easy; this is a generational challenge. We are going to be challenged regardless of what we do, so we might as well try to drive the process rather than be driven by it and possibly driven against a wall.

A member mentioned that the forestry model is not acceptable. That is true in many ways. That is why we are not proposing a European forestry model. Many of these policies can only be devised at local level. Our biggest policy is the Common Agricultural Policy, yet Irish representatives know better than many others how local that policy actually operates. Let us consider mobility. Other than in a small country, and I am not sure that Ireland qualifies as a small country for these purposes, mobility cannot be solved at a national level, let alone at European level. National governments can facilitate the transition, create infrastructure, help finance it and create the framework. They can create the compulsion to reduce CO₂. However, mobility must be solved at the local level. It must be solved by local public transport, intra-urban and inter-urban transport and alternatives to individual mobility in the form of the car, such as the explosion of shared vehicles, electric bikes and scooters. In Brussels, five companies started

offering electric scooters in the space of six months. Local authorities are becoming increasingly annoyed because these things are scattered all over the streets. They are now thinking of regulating the parking of electric scooters.

Chairman: It is the same here.

Mr. Mauro Petriccione: That happened in six months. I refer to the spatial distribution of territory. It is very clear that, perhaps unwittingly, we have encouraged commuting to an extent which has become unhealthy for many of our cities and urban areas. What can we do about this? It is not going to be solved at national level. It is going to be solved at the local and regional levels.

I refer to energy production. We will not replace the current totally centralised production model and totally diffused consumption model with a clean model which is otherwise identical. We are not going to move to a total diffusion of energy production, but we must move towards a more balanced model of energy production. We will continue to have large production facilities, but will also have point-to-point production and consumption. That will also happen at a local level. When I meet mayors or regional administrators, recurring questions are what policies we can put in place and what support we can receive for local renewables, which is not the same as the mass renewable project we used to consider. If a forestry model is acceptable to Ireland, it is Ireland's choice. The Common Agricultural Policy is capable of supporting it, but it needs to be greened significantly. We have thus far tried to do this, but what we have done is not sufficient. The legal instruments are already in place in the regulation, not least in what the Commission has proposed in the new multi-annual framework for the period 2021 to 2027, inclusive, but it will also require much more co-operation among member states with the institutions and farmers to develop new and better models. It is not a uniquely Irish problem; it is found almost throughout Europe. We need to find a way to have better agricultural practices, better management of commercial forests and better preservation of primary forest cover, which, at least in certain parts of Europe, remains sizeable.

I may have misspoken earlier, but I was referring to economically marginal agricultural land, that is, land which is cultivated with food and commercial crops. In some parts of Europe the economic yield from that cultivation is marginal. Converting that land to be used for biomass could be a rational proposition for farmers. I was not speaking about wetlands. Wetland conservation is a primary objective of the European Union.

Deputy Eamon Ryan: Much of Ireland is covered by wetlands, unfortunately. We have a lot of wetlands.

Mr. Mauro Petriccione: Only in the winter. Again, we do not suggest everybody must convert every metre of available land not used for something better to be used for biomass. All member states will not be able to use biomass as a significant source of power. When we speak about biomass, we do not speak exclusively about what grows in the land. We must move away from crop-based biofuels. The Commission has proposed the phasing out of the eligibility of the fuel quality directive and, fortunately, the Council and the Parliament have agreed with us. The situation is confused, but, ultimately, we must move towards second and third generation biofuels. We do not suggest a mechanical transfer of land from one use to another, but it is clear that if we want to achieve climate neutrality, we need to use more biomass that must be sustainable and not wreak havoc on the environment.

Deputy Eamon Ryan asked about the links between biodiversity and climate action. They

are very close. One can, if one so wishes, create a climate policy at the expense of environmental conservation, in the same way there can be an energy security policy at the expense of the climate, but that is not the point. We are trying to maintain a coherent consistency. I do not claim that we have achieved it or that we are infallible, but I am sure that whenever we fail to ensure coherence, it will be pointed out to us in no uncertain terms. Frankly, that does not worry us in the slightest; on the contrary, we consider it crucial.

I spend a fair amount of my time co-operating with my colleagues in charge of the environment and trying to ensure coherency. Sooner rather than later, we will see the draft environmental action plan which will include a concrete example of an attempt to make explicit the coherence between climate policy and our other environmental policies, including that on air quality. Thus far, the largest contributor to reducing emissions from transport in urban areas has been air quality legislation, but, unfortunately, it does not automatically translate. From an emissions point of view, as we saw following the diesel scandal, while petrol cars respect air quality standards more easily than diesel cars, they also increase emissions. As a result of the diesel scandal in 2017, road transport emissions reached a peak. Fortunately, it was a transitory phenomenon and emissions are reducing again, but it made us worried. Policy coherence is essential, but we should not be paralysed and do nothing while we continuously seek coherence. It is a continuous process.

I will try to group my answers to the questions asked about the planning process.

Deputy Eamon Ryan: I must catch a train. I apologise, but I will watch the remaining part of the meeting later.

Chairman: We will send a recording and transcript of the meeting to the Deputy.

Mr. Mauro Petriccione: We could spend much of the conversation on this and other issues. There is the short-term issue of governance regulation and the broader issue of a plan. As far as governance regulation is concerned, on the face of it, it is a one-off exercise. Drafts have been produced, more or less on time. We are reviewing them and will issue a set of recommendations by the end of June. We do not intend to sit in judgment on the Mercedes plan. We will not issue a recommendation that will pass judgment on the quality of the plan or anything else. The recommendation will identify what we see as a lack of clarity on how policies will be implemented and financed because, in some cases, they are simply not clear. A policy may be stated and announced but short on detail. We will also point out to member states whether the policy the plan announces appears to be capable, on the basis of the information provided, of fulfilling the objectives of mandatory European legislation. In a number of cases that will not be the case and we will point it out supported by facts, given that the analysis will be factual. We will point to areas where the plans could benefit from clearer explanations, better analysis and explanations, and we will flag what we consider to be particularly effective examples of ways to address issues in a plan in order that member states will have access to a coherent analysis of how they can improve the plans. The objective is to have better plans at the end of the year and the discussions we have had in the Council working group have been unusually constructive in that respect.

There is a realisation that it is a common problem, that no member state has a monopoly of wisdom and that issues are complicated and need to be addressed everywhere. There is a considerable desire for a common analysis to learn from one another and examine best practice. We are keen to encourage that process. We hope and trust that afterwards it will encourage a permanent move towards better planning in the climate field. We have seen a number of ex-

amples that comfort us in that regard. I mentioned my country and the fact that the allocation of targets at a regional level was being replicated in the 2030 targets. We have seen the Irish plan. The committee knows as well as I what the shortcomings of the policy are. It is a very robust, accurate and honest analysis of the position. There is a good standard of quality in terms of preparing or writing a plan and we would like member states to move towards that standard rather than away from it. We hope and trust this can be continued over time. We will find an informal way to improve it.

Interconnections are absolutely necessary. There is a reluctance from the Commission to speculate about Brexit but to be honest I wish I had an answer to this and many other questions we all have about what will happen with Brexit. It is very clear that the long-term interests of Europe and particularly Ireland, in many ways, are with co-operation with the United Kingdom that is as close as possible in the future. I am afraid crystal balls are not part of the standard kit for Commission officials.

There was mention of review clauses for post 2030 etc. We will have the instruments to react earlier. Even without any instruments, the Commission has power of initiative and we will keep the situation constantly under control. If something happens that proves the current legislation is inadequate, the Commission has the power to propose new legislation on the spot. We have taken care to build into all the legislation approved with a 2030 horizon monetary reporting verification mechanisms of various kinds. There are review clauses everywhere, usually in the time brackets to 2022 and 2025. It depends on the legislation and it varies. Many reports from the Commission will come at least during those years and we may do it more often if circumstances justify it. At least in that period there will be many mid-term reports by the Commission on the basis of which action may be taken to modify the legislation. At the latest, for legislation that must enter into force as of 2031, the process would have to start by 2026, or for a simpler piece of legislation, by 2027. We have an obligation to carry out impact assessments and public consultations and the approval process by Council and the European Parliament is often very lengthy. At the latest, by 2026 members will begin to see the shape of legislation to come.

There was a question on the legal state of the strategy. As it is a policy, it does not have the legal status of legislation. At the same time, I draw the attention of members to the fact that the entire 2030 legislative programme is based on one conclusion of the European Council in 2014. I go back to what I said earlier in that the key is how deep the consensus around the Council conclusion is. We are trying to help national authorities to carry out a more informed domestic debate. Our assumption is that this will produce an endorsement by the European Council that will have much greater depth than it normally has and afford much greater durability and ability to influence. On that basis of such an endorsement, the Commission will certainly take a number of initiatives. I am not in a position to prejudge today what will happen, especially as there will be a new Commission and its identity is not even known yet. I am certain that a number of decisions will be taken, with some in the very short term. These include allocation of research funds and choice of research projects. That is mandated in the legislation now before the European Parliament and the Council. Those choices will have to be made. If the European Council endorses the objective of climate neutrality, I do not see how any Commission could ignore that in deciding the research priorities of the next few years. There is the question of infrastructure and interconnection, whether that is electric or taking in new pipelines, and I do not see how such decisions can be taken under InvestEU, the Connecting Europe Facility or the Cohesion Fund, without making abstraction from an endorsement by the European Council of the objective of climate neutrality by 2050. Those conclusions have a deep impact on legisla-

tion and policy making at the European level, irrespective of the formal legal status. So far, the 2014 conclusions have produced a massive legislative programme, with perhaps 16 pieces of legislation over four years. It is pretty exceptional by European standards.

There was the question of what is next in the transition from fossil fuels to alternatives. A fossil fuel is a fossil fuel is a fossil fuel. If we are to talk about a climate-neutral society, we cannot afford to have the word “fossil” in our final energy mix. What does that mean in practical terms? We have an issue and must decide on the future of gas, for example. If natural gas remains a source of carbon, it can only be a transition technology. It is far from impossible that natural gas could remain a permanent part of the energy mix if carbon capture technologies are developed further and employed. The Norwegians have started to propose that natural gas should be used as the main source for producing clean hydrogen, with the resulting carbon being stored in the caves where the gas came from. If that technology can be made commercially viable, it is certainly something we would welcome and support in any way we can. At this stage, we do not know. It would be helpful if member states could help in placing responsibility on the gas industry to decide what it wants to be. Does it want to be a transitional tool or a permanent solution? Will it invest in carbon capture technology and address public concerns, whether justified or not, as even the perception needs to be addressed? The industry can help to reassure the public and it is in its hands. We cannot do it for them.

I will not get into detail but there was a point on migration, urbanisation and public health. It is very clear that unchecked climate change will make all that worse and it already has. The link between climate change and migration has already been proven. Migration is happening that was spurred on by climate change. It is an additional reason the world we have today is one which climate change is making unsafe in more ways than one. We know that and we must continue to communicate that, explain it and use it as part of the rationale for action that should happen faster than it otherwise would.

Looking at the world’s situation, it is not as bad as it sometimes looks. I will start with the biggest problem, the United States. In the United States, this Administration is intent on becoming the champion of climate scepticism. At the same time, there is a very large movement within the United States that continues to move in the opposite direction. At the level of state government, where it is very much a bipartisan issue, we have seen Democratic and Republican Governors continue to be strong advocates of strong climate policies. As for industry, US industry is global. It is as concerned about where Europe is going as where the United States is going. Large multinationals, in particular, have horizons of 20, 30 or 40 years. They see where things are going. They realise their own lack of resilience to climate change will put them in jeopardy. They see their business models crumbling. What we see in the United States is a pause. It is unwelcome and dangerous, but it is a pause. Even China, the largest emitter in the world, is developing a long-term strategy. There is very intensive co-operation between our economic modellers. We have supported China in setting up an emissions trading scheme. It has experimented with seven models in seven provinces. This is a typical mode of operation for the Chinese Government which has now chosen to launch a national scheme based on the European model. We have been co-operating with it for years, offering it technical assistance and support for the scheme, and we are intensifying that co-operation. It will be a hard slog for the Chinese to make it work as we have seen the difficulties we have had. However, the Chinese are determined to make it work. Some 70% of China’s energy generation is still thermal, mostly from coal. At the same time, China invests more in renewable energies than everybody else in the world combined. The Chinese have a very large development problem.

Senator Ian Marshall: Does China still use nuclear energy?

Mr. Mauro Petriccione: It still has some nuclear plants. It will continue to use nuclear energy but so will some of our member states. As the Senator may have seen, we project that approximately 15% of our energy supply will come from nuclear energy generation in 2050. That is not a prediction or suggestion but an extrapolation of current choices made by member states regarding energy mix. If those choices change in one way or another, that projection will have to change, but that is what we have modelled on the basis of what we know today.

Japan will come up with a long-term strategy in June. It will be very similar to ours, although it will not be as ambitious. This is a global problem which we are not going to solve. By 2030 we will be irrelevant in reducing emissions because we will produce less than 2% of world emissions. However, we are absolutely crucial in offering the model for how to do it. If nobody offers that model, it will not happen and there is nobody else who is even prepared to try, let alone to succeed. We have a unique combination of factors in Europe. The pressure from people for immediate and urgent action is enormous and constant. It is everywhere and, as members will have seen in their communities, it cuts across preferences in the different parts of the political spectrum. I am conscious that there may be some exceptions, but, by and large, that is the situation in Europe. It is not the situation anywhere else. The United States is a profoundly divided society in terms of politics, social model and belief in climate change. We have the technology. We have to invest massively in the renovation and modernisation of the economy. We may just as well invest in a model of the economy which is cleaner, safer and can be imitated by others. As I said at the beginning, we do not see any different model that is capable of succeeding. A model that does not combine a clean economy with prosperity is very unlikely to receive the required support. In many ways, we are fortunate that we do not have to make a choice in that respect because there is none.

I apologise to the Chair for taking so long.

Chairman: Mr. Petriccione's comments were very good, informative and helpful in our work. We welcome the offer of engagement with his office in the future. We will try to work as constructively as we can with him. On that note, I thank Mr. Petriccione, Dr. Dupriez and Mr. Kiely for coming before us.

Mr. Mauro Petriccione: I thank members for their attention.

The joint committee adjourned at 4.45 p.m. until 2 p.m. on Wednesday, 19 June 2019.